

File #: M1011003

Date Received: 8/18/06

DOGM Lead: Lynn Kunzler

Permit Fee \$ 500⁰⁰ Ck # 0715969

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
1594 West North Temple Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
Telephone: (801) 538-5291 Fax: (801) 359-3940

NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

The informational requirements in this form are based on provisions of the Mined Land Reclamation Act, Title 40-8, Utah Code Annotated 1953, General Rules and Rules of Practice and Procedures.

This form applies only to mining operations which disturb or will disturb more than five acres at any given time.

"MINING OPERATIONS" means those activities conducted on the surface of the land for the exploration for, development of, or extraction of a mineral deposit, including, but not limited to, surface mining and the surface effects of underground and in situ mining, on-site transportation, concentrating, milling, evaporation, and other primary processing.

"Mining operation" does not include: the extraction of sand, gravel, and rock aggregate; the extraction of oil and gas as defined in Chapter 6, Title 40; the extraction of geothermal steam; smelting or refining operations; off-site operations and transportation; or reconnaissance activities which will not cause significant surface resource disturbance or involve the use of mechanized earth-moving equipment such as bulldozers or backhoes.

PLEASE NOTE: *This form is to be used as a guideline in assembling the information necessary to satisfy the Large Mining Operations Notice of Intention requirements. **You will need extra space to provide a majority of the information requested.** Please provide the information on additional sheets and include cross-referenced page numbers as necessary. The Permittee / Operator may submit this information on an alternate form; however, the same or similar format must be used.*

RECEIVED
AUG 18 2006
DIV. OF OIL, GAS & MINING

I. Rule R647-4-104 - Operator(s), Surface and Mineral Owners

The Permittee / Operator must provide the name, address and telephone number of the individual or company who will be responsible for the proposed operation. If a company is to be listed as the Permittee / Operator, then the names of the corporate officers need to be provided.

Table 1 – Ownership and General Information

1.	Mine Name:	UDOT Beck Street Quarry				
2.	Name of Permittee/ Operator/ Applicant:	Utah Department of Transportation (UDOT)				
	Contact (Authorized Officer):	John Thomas, Legacy Parkway Project <i>L. Scott Nussbaum</i> <i>Regional Materials Engineer</i>				
	Company <input type="checkbox"/>	Corporation <input type="checkbox"/>	Partnership <input type="checkbox"/>	Individual <input type="checkbox"/>		
	A corporation must be registered with the State of Utah, Division of Corporations. Are you currently registered to do business in the State of Utah? <input type="checkbox"/> Yes <input type="checkbox"/> No					
	Business License #:	N/A				
	Registered Agent (as identified on your business license):	N/A				
	Address:					
	Phone:			Fax:		
3.	Permanent Address:	<i>Region One Materials</i>				
	Legacy Parkway Office	<i>Utah Dept of Transportation</i>				
	4001 South 700 East, Suite 450	<i>166 Southwell Street, Ogden UT 84404</i>				
	Salt Lake City, UT 84107					
	Phone: (801) 620-1606	(801) 924-2070	Fax: 801-627-8196	(801) 924-2071		
4.	Company Representative (or designated operator):					
	Name:	John Thomas <i>L. Scott Nussbaum P.E.</i>				
	Title:	Legacy Parkway Project Director				
	Address:	Legacy Parkway Office 4001 South 700 East, Suite 450 Salt Lake City, UT 84107 <i>see # 2 & #3 above.</i>				
	Phone:	(801) 924-2070	Fax:	(801) 924-2071		
5.	Location of Operation:					
	County(ies):	Davis				
	NE ¼	NE ¼	Section	14	Township	1 N Range 1 W
	The names of the surface and mineral owners for any areas which are to be impacted by mining must be provided to the Division. This list should include all private, state and federal ownership and the owners of lands immediately adjacent to the project areas.					
6.	Ownership of the land surface (check all that apply):					
	<input type="checkbox"/> Private (Fee)					
	<input type="checkbox"/> Public Domain (BLM)					
	<input type="checkbox"/> National Forest (USFS)					
	<input type="checkbox"/> State of Utah (SITLA)					
	<input checked="" type="checkbox"/> Other:					
	Name:	UDOT	Address:	4501 South 2700 West Salt Lake City, UT 84119		
	Name:		Address:			
	Name:		Address:			
	Name:		Address:			

Charges made 1-26-09 by LK as per next page (2a)

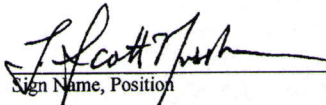
Application for Mineral Mine Plan Revision or Amendment

Operator: Utah Department of Transportation			
Mine Name: UDOT Beck Street Quarry			File Number: M/011/0003
Provide a detailed listing of all changes to the mining and reclamation plan that will be required as a result of this change. Individually list all maps and drawings that are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise or amend the existing Mining and Reclamation Plan. Include page, section and drawing numbers as part of the description.			
DETAILED SCHEDULE OF CHANGES TO THE MINING AND RECLAMATION PLAN			
			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Table 1, Part 2: <i>Contact, (Authorized Officer)</i> L. Scott Nussbaum, Region Materials Engineer
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Table 1, Part 3: <i>Permanent Address</i> Region One Materials Utah Department of Transportation 166 Southwell Street, Ogden, UT 84404 Phone: 801-620-1606 Fax: 801-627-8196
<input type="checkbox"/> ADD	<input checked="" type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Table 1, Part 4: <i>Company Representative</i> L. Scott Nussbaum, P.E. Region Materials Engineer Utah Department of Transportation 166 Southwell Street, Ogden, UT 84404 Phone: 801-620-1606 Fax: 801-627-8196
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments and obligations, herein.

L. Scott Nussbaum

Print Name


Sign Name, Position

Region Materials Engineer

January 7, 2009

Date

Return to:

State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
Phone: (801) 538-5291 Fax: (801) 359-3940

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FOR DOGM USE ONLY:	
File #:	M/ /
Approved:	
Bond Adjustment: from (\$)	
to \$	

7.	Owner(s) of record of the minerals to be mined (check all that apply):			
	<input type="checkbox"/> Private (Fee) <input type="checkbox"/> Public Domain (BLM) <input type="checkbox"/> National Forest (USFS) <input type="checkbox"/> State of Utah (SITLA) <input checked="" type="checkbox"/> Other:			
	Name:	UDOT	Address:	4501 South 2700 West Salt Lake City, UT 84119
	Name:		Address:	
	Name:		Address:	
	Name:		Address:	
8.	BLM Lease or Project File Number(s):		N/A	
	USFS Project Number(s):		N/A	
	BLM Claim Numbers:		N/A	
	Utah State Lease Number(s):		N/A	
	Name of Lessee(s):		N/A	
9.	Adjacent land owners:			
	Name:	Monte C. & Gloria V. Thomas	Address:	7715 Dell Road Salt Lake City, UT 84121
	Name:	Granite Construction Company	Address:	<u>Mailing Address</u> P.O. Box 50085 Watsonville, CA 95077 <u>Local Street Address</u> 1000 N. Warm Springs Road Salt Lake City, UT 84126
	Name:	LRP Investments, LLC	Address:	<u>Mailing Address</u> P.O. Box 700 North Salt Lake, UT 84054 <u>Street Address</u> 900 N. Redwood Rd. North Salt Lake, UT 84054
10.	Have the land, mineral and adjacent land owners been notified in writing? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, why not?			
11.	Does the Permittee / Operator have legal right to enter and conduct mining operations on the land covered by this notice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			

II. Rule R647-4-105 - Maps, Drawings & Photographs

The proposed mining operation is to be located on a 48.35-acre parcel owned by UDOT. The parcel, located in North Salt Lake, is recorded as Davis County Parcel No. 011220004. The property extends into I-15 and U.S. Highway 89 and also includes a portion of the frontage road east of the highway corridor. Mining operations are proposed on the portion of UDOT's property located to the east of the frontage road. This area is about 40 acres and is generally described as the NE ¼ of the NE ¼, Section 14, Township 1 North, Range 1 West, Salt Lake Base

and Meridian. The area of proposed mining operations is referred to herein as the UDOT Beck Street Quarry or simply "quarry" or "site."

The following maps and drawings have been prepared to show information relevant to the Notice of Intention:

Table 2 – List of Figures

Figure No.	Title	Notes
1	Site Location	
2	Property Ownership	
3	Base Map	See Table 3
4	Surface Facilities Map	See Table 4
5	Topsoil Management Areas	
6	Final Quarry Plan	Figure 6 shows reclamation treatments; see Table 5.
7	Quarry Cross Sections	
8	Soil and Rock Exploration	

105.1 - Base Map

A complete and correct topographic base map (or maps) with appropriate contour intervals must be submitted with this notice showing all of the items on the following checklist. The scale should be approximately 1 inch = 2,000 feet (preferably a USGS 7.5 minute series or equivalent topographic map where available). The map(s) must show the location of lands to be affected in sufficient detail to allow measurement of the proposed area of surface disturbance.

Base Map Checklist

Please check off each section to verify these features are included on the map(s) or explain why it is not applicable. Please add the map identification name or number which shows these features.

Table 3 – Base Map Checklist

Check	Map ID	Feature	Notes
A			
	A1	Property boundaries of land to be affected by mining operations	
B			
	B1	Perennial, intermittent, or ephemeral streams	The nearest streams are located in an unnamed canyon to the north and in Lime Canyon to the south.
	B2	Springs and other bodies of water	Based on a review of literature relating to other quarry operations along the Beck Street corridor, a number of springs are identified to the south and east of the site, including Lime Canyon Springs, Beck's Hot Spring, and Wasatch Springs. However, none of the springs is located within 500 feet of the site. Beck's Hot Spring is called out on the base map.

Check	Map ID	Feature	Notes
	B3	Roads	Starting at the west edge of the property and moving east, roads include I-15, U.S. Highway 89, a paved frontage road, and an unpaved road used by Lakeview Rock Products to move between the northern and southern portions of their operations.
	B4	Buildings	Building locations at nearby quarry sites as identified on March 2006 aerials are shown.
	--	Landing strips	There are no landing strips in the site vicinity.
	B5	Electrical transmission lines	An electrical line runs east of and parallel to the paved frontage road near the western edge of proposed mining operations.
	B6	Water wells	Data for three nearby wells were obtained from the Utah Division of Water Rights.
	B7	Oil and gas pipelines	Questar Gas Company and Kern River Gas Transmission Company operate pipelines in the project vicinity. The pipeline alignments are not entirely coincident; however, the portions nearest to UDOT property (to the northeast) are closely approximated by the feature shown on the USGS Salt Lake City, UT North Quadrangle and labeled as B6.
	--	Existing wells or boreholes	See Water wells, above, and Surface Facilities Map (Figure 4) for exploration areas.
	--	Other existing surface or subsurface facilities	
C			
	C1	Proposed route of access	<p>Access points to the frontage road on the west side of the site (where all haul trucks will load material) are from U.S. Highway 89 / Beck Street and are located at 1810 North (Salt Lake), 2100 North (Salt Lake, approximate), and 350 South (North Salt Lake, approximate). The haul route has not been finalized, but the following limitations are known:</p> <ul style="list-style-type: none"> • The 2100 North (Salt Lake) access is a northbound, right-hand-turn access only. • Haul truck traffic is not permitted on Center Street in North Salt Lake. <p>Access to the east side of the site is from the northeast from Edge Crest Drive and through property owned by Granite Construction Company. All access for exploration was with owner permission. All loading/hauling will be facilitated from the west side of the property.</p>

Check	Map ID	Feature	Notes
D			
	D1	Areas of known mining	Areas of known mining were created based on property boundaries in Davis County and aerial photography (March 2006) in Salt Lake County; areas based on the latter should be considered approximate.
	--	Areas of known exploration	See Surface Facilities Map for location of exploratory test pits, drilling, and trenches. Site exploration was completed by Kleinfelder Associates from June to August 2006.
E			
	E1	Proposed areas of disturbance	Proposed mining operations, including soil stockpile areas.

105.2 - Surface Facilities Map

Surface Facilities Map Checklist

Surface facilities maps should be provided at a scale of not less than 1" = 500'. Please check off each section to verify these features are included on the map(s) or explain why it is not applicable. Please add the map identification name or number which shows these features.

Table 4 – Surface Facilities Map Checklist

Check	Map ID	Feature	Notes
A: Proposed Surface Facilities			
	--	Buildings	No permanent buildings are anticipated. Contractors may elect to place temporary trailers on site.
		Stationary mining/processing equipment	Telescoping radial stacker, grizzly, feeder, jaw crusher, and UNSOC belt called out in figure.
		Roads	Haul road called out on figure.
		Utilities	The following utilities are located along the frontage road: <ul style="list-style-type: none"> • Water (fire hydrant identified on east side of road and north of UDOT property); • Telecommunications (manhole identified on east side of road within UDOT property; and • Gas line marker identified on west side of road within UDOT property. Note: Further utilities information has been requested from the City of North Salt Lake; these features are not yet shown.
		Power lines	See Figure 3 – Base Map (Electrical Line)
	--	Proposed drainage control structures	

Check	Map ID	Feature	Notes
		Topsoil storage areas	See Figure 5 – Topsoil Management Areas.
	--	Overburden/waste dumps	
	--	Tailings or processed waste facilities	
	--	Disposal areas for overburden	
	--	Solid and liquid wastes	
	--	Wastewater discharge treatment and containment facilities	
B			
		Extent of surface area proposed to be affected by mining operations (show border and acreage)	See Site Boundary.
C			
		Location of known test borings, pits, and core holes	See Figure 8.

105.3 - Additional Maps

Reclamation Treatments Map Checklist

Please check off each section to verify these features are included on the map(s) or explain why it is not applicable. Please add the map identification name or number which shows these features.

Table 5 – Reclamation Treatments Map Checklist

Check	Map ID	Feature	Notes
A: Reclamation Treatment Areas			
Note: Reclamation treatments may include ripping, regrading, replacing soil, fertilizing, mulching, broadcast seeding, drill seeding, and hydroseeding.			
	--	Buildings	General Note: See VII. Rule R647-4-110 – Reclamation Plan for discussion of reclamation and items not applicable.
	--	Stationary mining/processing equipment	
	--	Roads	
	--	Utilities	
	--	Proposed drainage improvements or reconstruction	
	--	Sediment control structures	
		Topsoil storage areas	See Figure 5 – Topsoil Management Areas.
	--	Overburden/waste dumps	
	--	Tailings or processed waste facilities	
	--	Disposal areas for overburden	
	--	Solid and liquid wastes	
	--	Ponds and wastewater discharge treatment and	

Check	Map ID	Feature	Notes
		containment facilities	
B			
		Extent of surface area to be <u>reclaimed</u> (show border and acreage; also indicate number of acres disturbed)	See Explanation for Reclamation Surfaces. Areas are noted in Section 110.5.
C			
	--	Areas disturbed by this operation which are included in a request for a variance from the reclamation standards.	
D			
	--	Highwalls which are proposed to remain steeper than 45 degrees and slopes which are proposed to remain steeper than 3 horizontal : 1 vertical.	Currently anticipated highwall slope is 45 degrees. If slope stability analyses justify steeper slopes and such is desired, this will be proposed to DOGM.

Note: Areas included in sections c & d will need to be referenced in the variance request section. Please shade or color code these areas on this map.

Additional maps and cross sections may be required in accordance with Rule R647-4-105.3. Design drawings and typical cross-sections for each tailings pond, sediment pond, or other major drainage control structures must also be included.

III. Rule R647-4-106 - Operation Plan

106.1 - Mineral(s) to be mined:

Mineral materials to be mined include surface sand and gravel colluvium, bedrock conglomerate, and bedrock dolomite. These rock products will be transported off site to be used as roadway construction materials.

106.2 - Type of Operation Conducted:

Describe the typical methods and procedures to be used in mining operations, on-site processing and concurrent reclamation. Include equipment descriptions where appropriate.

Methods used for mining and quarrying at this site will consist of removal of surface burden material and will be typical of those used by the aggregate surface mining industry in general. Because of the steep topography of the site, material will be mined at the eastern side of the site and pushed down a series of benches westward by bulldozer. The material will end up on the western portion of the site about 400 feet below the starting point, where it will be processed. (See Figures 6 and 7.) The net angle of these benches will be no steeper than 45 degrees from the bottom to the top of the quarry. Processing equipment will be

designed so that there will be two parallel processing operations operating at the toe of the slope. A description of each operational procedure is provided in the following paragraphs.

a. Blasting.

An engineered pattern of boreholes about 3 inches in diameter will be drilled at various depths along a prescribed portion of the site to be mined. A detonation charge will be placed into the bottom of each hole, which will then be filled with an ammonium nitrate–fuel oil mixture (ANFO) or typical equivalent to a depth of 7 feet below ground surface. The top of the borehole will be packed with stemming material designed to plug the hole and direct the blast in a lateral direction. The detonation of the charges in a synchronous fashion will fracture and loosen bedrock and other subsurface materials, enabling it to be removed by bulldozer.

b. Bulldozing.

A minimum of two Caterpillar D10 bulldozers (or equivalent) will be used to excavate blasted material and will push the material down the slope westward toward the processing area.

c. Feeding and crushing.

Bulldozers will push material toward two planned grizzly feeders, which separate large aggregate and rock material from smaller gravels and fines. Larger rock is separated by grizzly and sent into an attached jaw crusher (two crushers total), which will crush the material to a smaller size. Following crushing, the material will rejoin the smaller gravels and fines on a feed conveyor.

d. Stockpiling.

The feed conveyors from each crusher will transport material onto two separate stacker conveyors, which have the ability to articulate slowly over a prescribed radius, continuously depositing crushed material into a stockpile about 35 feet to 40 feet high. A total of two stockpiles will be formed on site from this operation.

e. Loadout.

One front-end loader (two loaders total) (Caterpillar 992 or equivalent) will operate at each stockpile and will load haul trucks at each location.

f. Hauling.

Haul trucks will access the site from the Beck Street Frontage Road, where they will travel about 1/8-mile distance combined from Frontage Road to the stockpile loadout area.

Concurrent reclamation activities during mining will be minimal, other than forming bench areas as described above.

106.3 - Estimated Acreage

Acreage listed here should match areas measured off the maps provided.

Table 6 – Estimated Acreage

Description	Acreage
Areas of actual mining:	37.9
Overburden/waste dumps:	0
Ore and product stockpiles:	2.7
Access/haul roads:	1.5
Associated on-site processing facilities:	< 0.5
Tailings disposal:	0
Other - Please describe:	0
Total	42.6

106.4 - Nature of material including waste rock/overburden and estimated tonnage

Describe the typical annual amount of the ore and waste rock/overburden to be generated, in cubic yards.

- *Where does the waste material originate?*
- *What is the nature of the overburden/wastes (general chemistry/mineralogy and description of geologic origin)?*
- *Will it be in the form of fines or coarse material?*
- *What are the typical particle size and size fractions of the waste rock?*

Except for topsoil that will be stockpiled on site for reclamation use after mining, all materials (mineral or ore materials) will be used off site for construction materials. No overburden, tailings, or reject materials will remain following mining activities. The thickness of the deposit to be mined varies over the site; however, its maximum thickness is estimated to be about 376 feet.

Table 7 – Nature of Materials

Thickness of overburden:	0 ft.
Thickness of mineral deposit:	376 ft.
Estimated annual volume of overburden:	0 cu. yds.
Estimated annual volume of tailings/reject materials:	0 cu. yds.
Estimated annual volume of ore mined:	2.7 million cu. yds.

106.5 - Existing soil types, location of plant growth material

Specific information on existing soils to be disturbed by mining will be required. General soils information may not be sufficient.

Provide specific descriptions of the existing soil resources found in the area. Soil types should be identified along with depth and extent, especially those to be directly impacted by mining.

Soils -The plan shall include an Order 3 Soil Survey (or similar) and map. This information is needed to determine which soils are suitable for stockpiling for revegetation. This soil data may be available from the local Natural Resources Conservation Service office, or if on public lands, from the land management agency. The map needs to be of such scale that soil types can be accurately determined on the ground (see Attachment I).

Soils data were obtained from multiple sources (full references are located at the end of this document):

- *Soil Survey of Davis-Weber Area, Utah* (Soil Survey), published by the Soil Conservation Service in 1968;
- the Utah Automated Geographic Reference Center (AGRC) Statewide Geographic Information Database;
- the National Cooperative Soil Survey (NCSS) Web Soil Survey; and
- exploration conducted from June to August 2006.

Soil types (by map unit symbol) and exploration locations are shown in Figure 8. Based on the soil survey, about two-thirds of the site belongs to the Kilburn-Francis association (KFG2) and has slopes between 30 and 50 percent. The remainder of the site is comprised of Kilburn gravelly sand loam with 6- to 10-percent slopes (KgD), Sterling cobbly loam with 8- to 20-percent slopes (SgE), and an area identified as a gravel pit (GP). These soils are well-drained and/or excessively drained and have permeabilities greater than 6.3 inches per hour.

The Francis and Kilburn soils series have good suitability for road fill; the Sterling series has fair to good suitability for road fill. The Sterling soils series is deemed "not suitable" for topsoil. Francis and Kilburn soils have "good" and "fair" suitability for topsoil, respectively; however, the latter is noted as being gravelly.

Topsoil thickness was observed in the test pits, trenches, and soil sample locations excavated at the site during the exploration program (see TP, TR, and SS locations on Figure 8). The topsoil thickness was generally observed to be no thicker than about the upper 6 inches in any of our excavations. Areas on the site where topsoil can be recovered are shown on Figure 5. These include areas on the site that are not already disturbed that are no steeper than 30 percent, which is the limiting slope grade for bulldozer production (Caterpillar 2000). The upper 6 inches of soil shown to be in the topsoil recovery areas will be stockpiled as two long berms 30 feet wide not exceeding 6 feet high near the east and west boundaries of the site.

- (a) *Each soil type to be disturbed needs to be field analyzed for the following: depth of soil material, volume (for stockpiling), texture (field determination), pH (field determination).*
(cross reference with item 106.6)

Table 8 – Soil Properties

Soil 1: KgD – Kilburn gravelly sand loam, 6 to 10 percent slopes		
Depth of Soil Material	6	Inches
Volume (for stockpiling)	4,549	cu. yds.
Texture (field determination)	Gravelly silt loam	
pH (field determination)	7.3	
Soil 2: KFG2 – Kilburn-Francis association, 30 to 50 percent slopes		
Depth of Soil Material	6	Inches
Volume (for stockpiling)	779	cu. yds.

Texture (field determination)	Gravelly silt loam	
pH (field determination)	7.6	
Soil 3: SgE – Sterling cobbly loam, 8 to 20 percent slopes		
Depth of Soil Material	6	Inches
Volume (for stockpiling)	927	cu. yds.
Texture (field determination)	Gravelly sand loam	
pH (field determination)	7.1	
Soil 4: GP – Gravel Pit		
Depth of Soil Material	6	Inches
Volume (for stockpiling)	1679	cu. yds.
Texture (field determination)	Gravelly sand loam	
pH (field determination)	7.8	

- (b) *Where there are problem soil areas (as determined from the field examination) laboratory analysis may be necessary. Soil samples to be sent to the laboratory for analysis need to be about one quart in size, properly labeled, and in plastic bags. Each of the soil horizons on some sites may need to be sampled. Soil sample locations need to be shown on the soils map. Soil analysis for these samples should include: texture, pH, Ec (conductivity), CEC (Cation Exchange Capacity), SAR, % Organic Matter, Total N, Available Phosphorus (as P₂O₅), Potassium (as K₂O), and acid/base potential.*

No problem soil areas have been identified during the exploration program.

106.6 - Plan for protecting and redepositing existing soils

*Thickness of soil material to be salvaged and stockpiled: inches Area from which soil material can be salvaged: (show on map) acres
Volume of soil to be stockpiled: cu. yds.
(cross reference with item 106.5 (a))*

Describe how topsoil or subsoil material will be removed, stockpiled and protected.

Before mining begins on the site, the upper 6 inches of soil from the topsoil recovery areas shown on Figure 5 will be pushed and stockpiled by bulldozer to the two soil stockpile areas (east and west areas, also shown on Figure 5). These stockpiles will initially be enclosed with silt fencing and will be seeded with a grass seed to stabilize the stockpiles during mining activity. At the end of mining activities, the topsoil will be redistributed over the mined surfaces and will be reseeded to revegetate the mined areas.

106.7 - Existing vegetative communities to establish revegetation success

Vegetation - *The Permittee / Operator is required to return the land to a useful condition and reestablish at least 70 percent of the premining vegetation ground cover.*

Provide the Division with a description of the plant communities growing onsite and the percent vegetation cover for each plant community located on the site. Describe the methodology used to obtain these values.

The percent ground cover is determined by sampling the vegetation type(s) on the areas to be mined (see Attachment I for suggested sampling methods).

Indicate the vegetation community(ies) found at the site. List the predominant perennial species of vegetation growing in each vegetation community type.

(a) **Vegetation Survey**

Vegetative Communities

Under existing conditions, the UDOT Beck Street Quarry property consists of two vegetative communities (each with distinct vegetative coverage types). The upper area is on the east side of the property and at higher elevations; the lower area falls below the historic Stansbury shoreline. The upper area has historically experienced very little mining disturbance and erosion and so consists of a more native vegetative cover, primarily a relatively low-elevation grassland/foothill community. The lower area transitions to a steeply sloped, highly disturbed scree fall possibly due to past mining operations and/or erosion. There are some remaining native species that indicate a rabbitbrush/grassland/foothill community, but the lower area is currently dominated by non-native/invasive species.

Sampling Method

A total of six 200-foot vegetative transects were systematically placed to characterize vegetation on the Beck Street quarry operations site. Five 1-meter-square quadrats (plots) were placed at 50-foot intervals on each transect. Three transects (15 quadrats) were placed in each of the two vegetative community types (the upper and lower areas). The vegetation sampling method is summarized in Table 9.

Table 9 – Vegetation Sampling Method

Sampling method used:	Visual Estimation
Number of plots or transects (10 minimum):	30 Plots Total (15 in each vegetative community)

Percentage of bare ground, rock, litter, and vegetative cover by species was visually estimated by HDR biologists. Each species was assigned a cover class based on a range of percent cover. These classes and their corresponding ranges are shown in Table 10. In addition, strata (understory, shrub layer, or overstory) were identified. To determine the percent vegetative ground cover for each quadrat, the midpoint of the percent range for the various species were summed. Vegetative cover for the quadrats was then averaged based on community (upper or lower). The total percent cover might be greater than 100 because of (1) vegetative stratification (for example, a grass can grow beneath a shrub and both plants have a percent cover though the same area is occupied) and (2) use of the midpoint of the percent range (for example, a species with a

percent cover of 25 falls in the range of 25 to <50 and a greater value, 37.5, is used in calculations).

Table 10 – Cover Classes

Cover Class	Percent Range
1	75 to 100
2	50 to <75
3	25 to <50
4	5 to <25
5	1 to <5
R	R (<1)

Survey Results

Upper Area

The upper area of the site was estimated to contain about 109% vegetation, 2% litter, 14% rock/rock fragments, and <1% bare ground. The dominant plant species in the upper area are cheatgrass, common ragweed, and tall wheatgrass. Ground cover and perennial species for the upper area are shown in Tables 11 and 12, respectively.

Table 11 – Upper Area Ground Cover

Ground Cover	Percent ¹
Vegetation (perennial grass, forb and shrub cover)	109
Litter	2
Rock/rock fragments	14
Bare ground	<1
Total	100
Revegetation Requirement (70% of above vegetation figure)	70

1. See discussion of percent cover under Sampling Method.

Table 12 – Upper Area Perennial Species

Grasses	
Cheatgrass*	<i>Bromus tectorum</i>
Common ragweed*	<i>Ambrosia artemisiifolia</i>
Tall wheatgrass*	<i>Elymus elongates</i>
Purple threeawn	<i>Aristida purpurea</i>
Common rye	<i>Secale cereale</i>
Forbes	
Curlycup gumweed	<i>Grindelia squarrosa</i>
Kochia	<i>Kochia scoparia</i>
Blue lettuce	<i>Lactuca pulchella</i>
Yellow sweetclover	<i>Melilotus officinalis</i>
White sweetclover	<i>Melilotus alba</i>
Labriform milkweed	<i>Asclepias labriformis</i>
Pennycress	<i>Thlaspi arvense</i>
Plains pricklypear	<i>Opuntia polyacantha</i>
Thistle	<i>Cirsium</i> spp.

Purple aster	<i>Machaeranthera canescens</i>
Prickly lettuce	<i>Lactuca serriola</i>
Shrubs and Sub-Shrubs	
Broom snakeweed	<i>Gutierrezia sarothrae</i>
Squawbush	<i>Rhus trilobata</i>

* Asterisks indicate dominant species.

Lower Area

The lower area of the site was estimated to contain about 51% vegetation, 5% litter, 32% rock/rock fragments, and 28% bare ground. The dominant plant species in the lower area are wild oatgrass, cheatgrass, and rubber rabbitbrush. Ground cover and perennial species for the lower area are shown in Tables 13 and 14, respectively.

Table 13 – Lower Area Ground Cover

Ground Cover	Percent ¹
Vegetation (perennial grass, forb and shrub cover)	51
Litter	5
Rock/rock fragments	32
Bare ground	28
Total	100
Revegetation Requirement (70% of above vegetation figure)	36
1. See discussion of percent cover under Sampling Method.	

Table 14 – Lower Area Perennial Species

Grasses	
Cheatgrass*	<i>Bromus tectorum</i>
Common ragweed	<i>Ambrosia artemisiifolia</i>
Oat grass*	<i>Avena fatua</i>
Forbes	
Curlycup gumweed	<i>Grindelia squarrosa</i>
Kochia	<i>Kochia scoparia</i>
Blue lettuce	<i>Lactuca pulchella</i>
Yellow sweetclover	<i>Melilotus officinalis</i>
White sweetclover	<i>Melilotus alba</i>
Labriform milkweed	<i>Asclepias labriformis</i>
Pennycress	<i>Thlaspi arvense</i>
Plains pricklypear	<i>Opuntia polyacantha</i>
Thistle	<i>Cirsium</i> spp.
Shrubs and Sub-Shrubs	
Broom snakeweed	<i>Gutierrezia sarothrae</i>
Rubber rabbitbrush*	<i>Chrysothamnus nauseosus</i>
Squawbush	<i>Rhus trilobata</i>

* Asterisks indicate dominant species.

(b) *Photographs - The Permittee / Operator may submit photographs (prints) of the site to show existing vegetation conditions. These photographs should show the general appearance and condition of the area to be affected and may be utilized for comparison upon reclamation of the site. Photographs should be clearly marked as to the location, orientation and the date they were taken.*

Vegetation survey photos are located in Appendix A.

106.8 - Depth to groundwater, overburden material & geologic setting

Describe the approximate depth to groundwater in the vicinity of the operation based on the completion of any monitoring or water wells in the area. Please show the location of these wells on the base map.

Test pits excavated on the western side of the site (TP-4, TP-5, TP-6, and TP-7 on Figure 8) were at elevations between 4,275 feet and 4,300 feet with depths from 10 feet to 14 feet. Groundwater or groundwater indications were not observed in any of the test pits on the western side of the site. Borings drilled on the eastern edge of the property were at an elevation of about 4,800 feet with depths ranging from 98 feet to 405 feet. Groundwater was not observed in any of the borings drilled on the eastern side of the site.

From the Utah Division of Water Rights database, two well logs queried from neighboring properties located about 1,330 feet and 1,760 feet west of the site indicate that groundwater was encountered near the surface at the time the wells were drilled (UDWR 2006). The two wells west of the site were drilled in 1991 at an approximately 4,220-foot surface elevation, which is 55 feet lower than the proposed floor of the quarry. A well located 5,080 feet northeast of the site encountered groundwater at 23.6 feet below the surface. The well northeast of the site was drilled in 1996 at an approximately 5,000-foot surface elevation, which is 155 feet higher than the eastern boundary of the quarry site.

Because there are no monitoring or water wells on the site and because groundwater indications were not encountered in any of the borings or test pits and trenches, it is assumed that groundwater depth is greater than 14 feet at the site, but is probably about 50 feet.

Depth to Groundwater: >14 ft.

Provide a narrative description of the geology of the area and/or a geologic cross section.

The UDOT Beck Street Quarry is located in the southernmost part of Davis County on the west end of the Salt Lake Salient. The Salt Lake Salient is a west-trending ridge that is connected to the Wasatch Range on the east and bounds the Warm Springs fault of the Wasatch fault zone on the west. The quarry

consists of a near-level area on the very western frontage of the property and a moderately steep west-facing slope about 575 feet high that slopes upward to the east side of the property. The Warm Springs fault is inferred to cross the western part of the site (Personius and Scott 1992), and the topographic variation between the near level areas on the west of the site and moderately steep areas on the east side of the site is believed to be a result of past displacement from the faulting.

In general, the geology of the site consists of Paleozoic sedimentary rocks that are bounded unconformably above by Tertiary rocks with Quaternary gravels on the surface of the site (Van Horn 1981, 1982). The Paleozoic rocks consist of Cambrian dolomite that is overlain unconformably by Tertiary age conglomerate rock (Van Horn 1981). Quaternary colluvial gravels cover the sloping surfaces on the site, and Quaternary lacustrine gravels cover the western frontage of the site (Van Horn 1982). The Cambrian dolomite was not observed on the surface of the site; however, dolomite samples were recovered from Boring B-3B at an approximate depth of 330 feet.

Previous studies at or in the vicinity of the site (Van Horn 1981; Godbe 1987; AGRA 1995) have found that the rock units on the west end of the Salt Lake Salient generally dip down to the east. Based on measured strike and dips of exposed rocks at or in the vicinity of the site, the previous studies have projected that the formations dip eastward on the order of 25 degrees to 33 degrees (Van Horn 1981; AGRA 1995).

106.9 - Location and size of ore and waste stockpiles, tailings and treatment ponds, and discharges

Describe the location and size of any proposed waste/overburden dumps, stockpiles, tailings facilities and water storage or treatment ponds.

Describe how overburden material will be removed and stockpiled.

Describe how tailings, waste rock, rejected materials, etc. will be disposed of.

Describe the acreage and capacity of waste dumps, tailings ponds and water storage ponds to be constructed. All impoundments must include the necessary hydrologic calculations to determine if they are adequately sized to handle storm events.

Describe any proposed effluent discharge points (UPDES) and show their location on the surface facilities map. Give the proposed discharge rate and expected water quality. Attach chemical analyses of such discharge if available.

Except for topsoil that will be stockpiled on site for reclamation use after mining, all materials will be used for construction materials and no overburden, tailings, or reject materials will be stockpiled or remain following mining activities.

Material product stockpiles will be located on the western edge of the property and will encompass a maximum area of about 3 acres as shown on Figure 4. The finished product will be transported off site for construction use.

Water storage tanks and non-organic chemical dust suppressant tanks will be present on site for dust control purposes on roadways, stockpiles, during bulldozing activity, and in the aggregate production circuits as necessary.

No tailings, waste rock, or rejected material will be generated during the process, and therefore there will be no storage, disposal, or waste dumps for those waste products. The crushing processes to be conducted on the site do not require treatment ponds, so there will be no treatment ponds on the property.

There is no expectation for effluent to discharge from the site. The water planned for use in the processing is for dust control and either will infiltrate or evaporate before reaching the property boundary or will be removed with the processed material.

The site's drainage area totals about 100 acres (including the 40-acre mining area), and runoff flows generally from east to west. During the mining and after the completion of mining, the quarry floor will be graded to have a slight slope back to the east face of the mined slope to keep surface water on site and allow infiltration and evaporation. There will be no UPDES discharge point; however, an UPDES Storm Water General Permit for Construction Activities (Permit No. UTR100000) will be required. Coordination with the Utah Division of Water Quality has been initiated, and a Storm Water Pollution Prevention Plan will be prepared and implemented to control runoff and reduce erosion potential. Surface water runoff is addressed further in Section 109.1.

IV. R647-4-107 - Operation Practices

During operations, the Permittee / Operator shall conform to the practices listed under this section of the Minerals Rules unless the Division grants a variance in writing.

Describe measures taken to minimize hazards to public safety during mining operations regarding:

- *the closing or guarding of shafts and tunnels to prevent unauthorized or accidental entry in accordance with MSHA regulations;*
- *the disposal of trash, scrap metal, wood and extraneous debris;*
- *the plugging or capping of drill, core or other exploratory holes;*
- *the posting of appropriate warning signs in locations of public access to operations;*
- *the construction of berms, fences or barriers above highwalls or other excavations.*

If any of these safety measures are unnecessary, please explain why.

The following measures will be taken to minimize hazards to public safety during mining operations:

- The east and west sides along the site will be enclosed in safety fencing, and access to the site will be limited through gates to prevent unauthorized or accidental entry into the quarry site.
- All trash, scrap metal, wood, and extraneous debris will be appropriately disposed of at off site landfills.

- All drill, core, or other exploratory holes as required will be plugged according to the requirements of R647-4-108.
- Appropriate warning signs will be posted on safety fences and access gates to the quarry operations.
- The east safety fence will be placed to limit public access to the proposed benched slope, and the west safety fence will be placed to limit public access to the quarry floor area. The safety fencing will need to be modified as mining activity progresses across the site and the quarry floor is expanded.

Describe measures taken to avoid or minimize environmental damages to natural drainage channels which will be affected by this mining operation.

Describe measures taken to control and minimize sediment and erosion on areas affected by this mining operation. Describe measures being taken to prevent sediment from leaving the disturbed area.

The mining operation will not affect streams but will affect minor natural drainages. The drainages or swales are intermittent in nature and do not have defined bed and banks. Erosion control measures, such as installation of silt fencing or straw bales, will be implemented to reduce environmental damage.

Identify any potentially deleterious materials that may be stored on site (including fuel, oil, processing chemicals, etc.) and describe how they will be handled and stored. Describe the measures taken to salvage and store soils to be used in reclamation.

Describe how stockpiled topsoil will be protected from erosion and further impact.

No oil or processing chemicals will be stored on site. Fuel for equipment, including bulldozers and loaders, will be delivered to the site or will be stored in portable tanks within containment vessels.

Before mining begins on the site, the upper 6 inches of soil from the topsoil recovery areas shown on Figure 5 will be pushed and stockpiled by bulldozer to the two soil stockpile areas (east and west areas, also shown on Figure 5). These stockpiles will initially be enclosed with silt fencing and will be seeded with a grass seed to stabilize the stockpiles during mining activity. At the end of mining activities, the topsoil will be redistributed over the mined surfaces and will be reseeded to revegetate the mined areas.

Please describe any reclamation to be done during active mining operations prior to final closure. Reference these areas on a map.

There are no plans for any reclamation during active mining operations before final closure. However, as the quarry approaches mine-out (final slope configuration), the upper benches may undergo reclamation while mining and processing activities continue on the lower benches and quarry floor.

V. Rule R647-108 - Hole Plugging Requirements

All drill holes which will not eventually be consumed by mining must be plugged according to the methods listed in this section. Describe the location of any aquifers encountered by drilling and the method to be used to plug such water containing holes. Describe the method to be used for plugging holes not containing water.

All current and future exploration holes drilled that will not be consumed by mining will be plugged according to the requirements of R647-4-108. In accordance with R647-4-108, drill holes will not be left unplugged for more than 30 days, unless approval is granted by the Utah Division of Oil, Gas, and Mining. Currently there are no monitoring wells on the site, and there is no intent to install any such wells.

Groundwater was not encountered in any of the borings and test pits on the site, and it is not anticipated that any aquifers will be encountered during future drilling activity on the site.

The boreholes (B-1, B-2, B-3A, and B-3B) will be backfilled with bentonite chips with a Portland cement grout capping the borehole to within 5 feet of the surface, and the uppermost 5 feet will be replaced with drill cuttings.

VI. Rule R647-109 - Impact Statement

109.1 - Surface and groundwater systems

Describe impacts to surface or groundwater which could be caused by this mining operation. Describe how these impacts will be monitored and mitigated. The appropriate groundwater and stormwater control permits need to be obtained from the Division of Water Quality. Please reference any such permits.

The proposed mining activity will not encroach on natural stream channels. The nearest streams identified on the USGS Salt Lake City North, UT Quadrangle (1998) are located in an unnamed canyon to the north and in Lime Canyon to the south. No springs have been identified on the site, and no shallow groundwater was encountered during the excavation of test pits and trenches. Similarly, no deep groundwater was found during exploratory drilling as described in Section 106.8.

The site's drainage area was determined using the Salt Lake City North, UT Quadrangle. Surface water is limited to local drainage contributed from about 100 acres (40 acres on the mining site and 60 acres draining from the east). Although the drainage area is limited, the proposed activities will significantly change slopes and drainage on the site.

Runoff calculations for post-mining conditions were performed using the NRCS Curve Number (CN) Method. Digital soils data was obtained from the National

Cooperative Soil Survey and from Utah's Automated Geographic Reference Center. The *Soil Survey of Davis-Weber Area, Utah*, published by the Soil Conservation Service (SCS, now the Natural Resources Conservation Service) was also used to determine soil properties. Land cover determinations were based on field observations made from June to August 2006.

The drainage area for post-mining conditions was divided into three parts: (1) off site, (2) highwalls, and (3) quarry floor/benches (including the upper bench or setback area). *Urban Hydrology for Small Watersheds* (NRCS TR-55) was referenced for CN selection. The off site area is well-vegetated and will not be disturbed by the mining operation. Curve numbers were selected as described below:

- Off site: Soils east of the mining operation belong to hydrologic soils groups (HSGs) "B" and "C". CNs for herbaceous semiarid rangelands in good hydrologic condition were selected (NRCS 1986); however, the values were increased due to the relatively steep slopes. Specifically, the "C" value (74) was used for HSG "B", and the "D" value (85) was used for HSG "C".
- Highwalls: Based on a recommendation in the *New Mexico State Highway and Transportation Department Drainage Manual* regarding rock outcrop areas, the assumed HSG for highwalls was "D". A CN of 88 corresponding to "natural desert landscaping" was adopted (NRCS 1986).
- Quarry Floor/Benches: Less runoff is anticipated from the revegetated areas with mild slopes. A CN of 71 was adopted for these areas, which corresponds to herbaceous semiarid rangeland in fair hydrologic condition (NRCS 1986). The rock below the redistributed topsoil is anticipated to be highly fractured and therefore should not impede infiltration.

As noted previously, the drainage area is about 100 acres; however, the projected highwall surface area is significantly more than the plan area of 11.5 acres. The increased surface area is reflected in the runoff calculations and is considered appropriate because precipitation events generally come from the west.

Runoff was calculated for a 100-year, 6-hour precipitation event of 2.2 inches based on Bountiful Val-Verda station data obtained from the Hydrometeorological Design Studies Center Precipitation Frequency Data Server. Runoff calculations are reported in Table 15.

Table 15 – Post-Mining Conditions Curve Number and Runoff Calculations

Area Description	Hydrologic Soil Group (HSG)	Area (acres)	Curve Number (CN)	Area × CN
Offsite (HSG B)	B	52.6	74	3,892
Offsite (HSG "C")	C	7.4	85	629
Highwalls	B	20.0	88	1,760
Quarry Floor/Benches	B	28.5	71	2,024

Total		108.5		8,305
Composite Curve Number				77
Precipitation, inches				2.2
Runoff, inches				0.56
Area, acres				108.5
Runoff, acre-feet				5.1

109.2 - Wildlife habitat and endangered species

Describe the impacts on wildlife habitat associated with this operation. Describe any impacts to big game species found in the area. Describe any impacts to riparian areas. Describe any impacts this operation will have on waterfowl (fly-over, temporary resident or permanent resident). List any threatened or endangered wildlife species found in the area. Describe impacts to threatened or endangered species and their habitats. Describe measures to be taken to minimize or mitigate any impacts to wildlife or endangered species.

To assess potential project impacts, the Utah Division of Wildlife Resources (UDWR) and UDOT Environmental Services (UDOT ES) were consulted. Letters from these agencies are included in Appendix B.

Agency comments with regard to wildlife habitat and endangered species are summarized below:

- No occurrence of any threatened, endangered, or sensitive species was found within the project area or within a 1-mile radius (UDWR).
- In the vicinity of the project area, UDWR records do show occurrence for long-billed curlew (*Numenius americanus*), which is included on the *Utah Sensitive Species List*. However, this occurrence appears to be more than a mile away and the project area does not contain suitable habitat for this species. Therefore, no adverse effect on this bird is anticipated (UDOT ES).
- In accordance with U.S. Fish and Wildlife Service (USFWS) guidance (letter FWS/R6 ES/UT TA-0126, dated January 1, 2006), the UDOT ES provided a "no effect" determination to the long-billed curlew, or to any federally-listed threatened, endangered, or candidate species, or critical habitat (see Appendix B).
- "This project is adjacent to a moderately high wildlife/vehicle accident zone on I-15" (UDOT ES).
- No negative effect is anticipated for important wildlife habitat, big game migration routes, habitat connectivity, or fish passage (UDOT ES).

As stated previously, there are no significant streams or drainages on the site. No wetlands were identified during field investigations conducted July 2006. Based on these findings and the agency comments, no impacts to riparian areas or waterfowl are anticipated.

Although existing slopes are steep, wildlife might descend toward the I-15 corridor in this area because the slopes, equipment, and noise of adjacent mining operations make those locations undesirable. It is anticipated that the proposed mining operation will essentially complete the buffer between wildlife areas to the east and the I-15 corridor to the west in the project vicinity. No wildlife fencing or other mitigation measures are considered appropriate; however, safety fencing will be placed as noted under Operation Practices.

109.3 - Existing soil and plant resources

Describe impacts to the existing soil and plant resources in the area to be affected by mining operations. Describe impacts to riparian or wetland areas which will be affected by mining. Describe impacts to threatened or endangered plant species. Describe measures to be taken to minimize or mitigate any impacts to soil and plant resources.

Topsoil recovery areas and stockpile areas are shown in Figure 5. Outside of the recovery areas, natural slopes make topsoil recovery impractical. It should be noted that no threatened or endangered plant species were identified during agency coordination (see Appendix B). Revegetation will be required as part of reclamation activities and is described under Section 110.5.

Drainages on site are minor and intermittent. Mining activities will not impact riparian or wetland areas.

Topsoil recovery areas and stockpile areas are shown in Figure 5. These stockpiles will initially be enclosed with silt fencing and will be seeded with a grass seed to stabilize the stockpiles during mining activity. In accordance with UPDES requirements, a Storm Water Pollution Prevention Plan will be developed and Best Management Practices will be implemented to reduce erosion potential.

109.4 - Slope stability, erosion control, air quality, public health & safety

Describe the impacts this mining operation will have on slope stability, erosion, air quality, public health and safety. Include descriptions of highwall and slope configurations and their stability. Air quality permits from the Utah Division of Air Quality may be required for mining operations. Please reference any such permits. Describe measures to be taken to minimize or mitigate impacts to slope stability, erosion, air quality, or public health and safety.

Slope Stability and Erosion Control

Methods used for mining and quarrying at this site will consist of removal of surface burden material and will be typical of those used by the aggregate surface mining industry in general. Because of the steep topography of the site, material will be mined at the eastern side of the site. The material will be pushed down a series of slopes and benches westward by bulldozer, ending up on the western portion of the site about 400 feet below the starting point, where it will be processed.

During and following mining operations, the net angle of these benched slopes will be no steeper than 45 degrees from the bottom to the top of the quarry. Because the mined slopes will be comprised of rock, these slopes should remain stable at the 45-degree configuration planned for the mining and should be in compliance with the Mine Safety and Health Administration (MSHA) 30 CFR Section 56.3130 rule for wall, bank, and slope stability that states:

Mining methods shall be used that will maintain wall, bank, and slope stability in places where persons work or travel in performing their assigned tasks. When benching is necessary, the width and height shall be based on the type of equipment used for cleaning of benches or for scaling of walls, banks, and slopes.

Erosion on site will be minimal because the sloping surfaces exposed by the mining will be primarily rock. During the mining and after the completion of mining, the quarry floor will be graded to have a slight slope back to the east face of the mined slope to keep surface water on site and to encourage infiltration on site. The materials that do erode from the benched slopes will accumulate on the quarry floor at the toe of the slope and will probably be collected and used as material product.

Initial activities (such as soil stockpiling), mining operations, and reclamation will all result in changes to slopes and/or vegetative cover and influence erosion potential. Implementation of a site-specific SWPPP, in conjunction with UDWQ permitting, will provide for any necessary erosion control measures during the life of the mine.

Air Quality

UDOT is currently working with the Utah Division of Air Quality (UDAQ) on a submittal of a Notice of Intent (NOI) to obtain an air emissions Approval Order for mining operations at the site. Typical emissions from gravel mining operations are primarily particulate matter of ten microns or less (PM_{10}), which are created from the moving and processing of soils and rock. Blasting events and the operation of internal combustion, off-road vehicles such as loaders and bulldozers will result in emission of carbon monoxide (CO) and oxides of nitrogen (NO_x). In addition, combustion of diesel fuel also contributes minimal amounts of sulfur dioxide (SO_2) and volatile organic compounds (VOCs).

Operational sources and areas that will be addressed by the NOI will include drilling and blasting, bulldozing, crushing, stockpiling, load-outs, and roadway maintenance. It is possible that the quarry operations will be limited by Approval Order conditions that affect the hours of operation, total tonnage of material removed from the site on a yearly basis, and various areas of the site which will require fugitive dust control, primarily through watering and chemical stabilization, and which will have corresponding opacity limitations.

When issued, Approval Order operating requirements and emission limitation conditions will be followed by UDOT operators, which will result in minimal and allowable emissions to the ambient atmosphere from the quarry site.

If further information is needed regarding the status of the NOI application, please contact the Lead Permit Engineer for this project at the UDAQ, Mr. Jon Black, at (801) 536-4047.

Public Health and Safety

All operations will comply with applicable Mine Safety and Health Administration (MSHA) safety regulations. Health and safety measures to be employed include the following:

- The east and west sides along the site will be enclosed in safety fencing, and access to the site will be limited through gates to prevent unauthorized or accidental entry into the quarry site.
- All trash, scrap metal, wood, and extraneous debris will be appropriately disposed of at off site landfills.
- Blasting will be conducted as described in Section 106.2.
- All drill, core, or other exploratory holes as required will be plugged according to the requirements of R647-4-108.
- Appropriate warning signs will be posted on safety fences and access gates to the quarry operations.
- The east safety fence will be placed to limit public access to the proposed benched slope, and the west safety fence will be placed to limit public access to the quarry floor area. The safety fencing will need to be modified as mining activity progresses across the site and the quarry floor is expanded.
- Two mining operators might be processing on site at the same time. In this case, operators will be required to (1) establish working limits and place construction fencing to promote worker safety, (2) coordinate blasting activities, and (3) separate or coordinate haul truck movement to avoid conflicts.

VII. Rule R647-4-110 - RECLAMATION PLAN

110.1 - Current land use and post-mining land use

Current or premining land use(s) [other than mining]:

The land has been owned by UDOT for some time and can be considered open space. Steep slopes make the land unsuitable for many uses.

List future post-mine land-use(s) proposed: (Develop the reclamation plan to meet proposed post-mine land use.)

The property is located within Highway Commercial and Residential (R1-12) zones in North Salt Lake. However, it is anticipated that post-mining development will be limited to commercial establishments.

110.2 - Reclamation of roads, highwalls, slopes, leach pads, dumps, etc.

Describe how the following features will be reclaimed: roads, highwalls, slopes, impoundments, drainages and natural drainage patterns, pits, ponds, dumps, shafts, adits, 8 drill holes and leach pads. Describe the configuration of these features after final reclamation. Describe the rinsing and neutralization of leach pads associated with final decommissioning.

Describe how roads will be reclaimed. Road reclamation may include: regrading cut and fill sections, ripping the road surface with a dozer, topsoil replacement, construction of water bars, construction of traffic control berms or ditches, and reseeding.

Describe how highwalls will be reclaimed. Highwall reclamation may include: drilling and blasting, backfilling, regrading, topsoil replacement, and reseeding.

Describe how slopes will be reclaimed. Slope reclamation may include: regrading to a 3 horizontal : 1 vertical (3h:1v) configuration, topsoil replacement, contour ripping, pitting, and reseeding.

Describe how impoundments, pits and ponds will be reclaimed. Include the final elevations and final disposition of the drainage in and around the impoundment. If the impoundment, pit, or pond is intended to be left as part of the post-mining land use, then an agreement with the land managing agency/owner is required. Structures to remain must be left in a stable condition.

Include the final size of the impoundment, pit, pond in acre-feet of storage and the capacity of the spillway to safely pass storm events.

Impoundments, pits, and ponds, which are not approved as part of the post mining land use shall be reclaimed, free draining, and the natural drainage patterns restored.

Describe how drainages will be reclaimed. Drainage reclamation would include: the reestablishment of a natural drainage pattern which fits in with the upstream and downstream cross-section of existing drainage in the vicinity of the disturbance; the reestablishment of a stable channel in the reclaimed reach of channel, using the necessary armoring to prevent excessive erosion and downstream sedimentation.

Include cross-sections and profiles of reestablished channels to demonstrate compatibility with existing drainage characteristics.

Describe how waste dumps will be reclaimed. Waste dump reclamation may include regrading to a 3h:1v configuration, topsoil replacement, mulch or biosolids applications, contour ripping or pitting, and reseeding. Characterization of the physical and chemical nature of the waste dump materials should be provided.

Describe how shafts and adits will be reclaimed. Reclamation of shafts may include: backfilling, installation of a metal grate, installation of a reinforced concrete cap, topsoil replacement and reseeding. Reclamation of adits may include: backfilling, installation of a block wall, installation of a metal grate, topsoil replacement and reseeding.

Describe how drill holes will be reclaimed. Drill hole reclamation must be consistent with the rules for plugging drill holes (R647-4-108). Reclamation of plugged drill holes may include topsoil replacement and reseedling.

Describe how tailings areas will be reclaimed. Tailings reclamation may include: dewatering, neutralization, placement of cap materials, placement of subsoil materials, topsoil replacement and reseedling. Characterization of the physical and chemical makeup of the tailings material should be provided.

Describe how leach pads will be reclaimed. Reclamation of leached materials may include: neutralization or leached materials, rinsing of leached materials, dewatering leached materials, regrading slopes of leached materials to 3h:1v, extending pad liners, placement of capping materials, placement of subsoil materials, mulch or biosolids application, topsoil replacement and reseedling. Characterization of the physical and chemical makeup of the leached materials should be provided. Post closure monitoring and collection of drain down fluids should also be addressed.

NOTE: *The Minerals Rules require overall highwall angles of no more than 45° at final reclamation unless a variance is granted. All dump or fill slopes should be left at an angle of 3h:1v or less. Any slopes steeper than 3h:1v must be reclaimed using state-of-the-art surface stabilization technology. Pit benches exceeding 35 feet in width should be topsoiled, or covered with fines, and revegetated.*

Describe the final disposition of any stockpiled materials on site at the time of final reclamation.

The proposed final reclamation slope configuration will be as shown on Figures 6 and 7. The final configuration will consist of a series of five benches about 30 feet wide separated by 100-foot slopes, no steeper than 45 degrees as shown on Figure 7. The adjoining properties on the north and south of the proposed quarry (M & G Thomas property and L.R.P. Investments, LLC property, respectively, on Figure 6) are presently being mined using similar benched-slope configurations proposed for this quarry. The benched configuration elevations shown on Figures 6 and 7 for this quarry should conform to mining elevations proposed for the M & G Thomas property on the north side of the site. The slope configuration of the L.R.P. Investments, LLC property are presently being considered to be steeper than the 45-degree overall slope planned for the UDOT quarry, which will require warping and blending of the proposed final slope to match that of the adjacent property. The quarry floor area will be graded to a near-level configuration with a slight down-sloping to the east toward the toe of the benched slope. The adjoining properties on the north and south of the proposed quarry will have similar quarry floor elevations.

After the completion of mining, topsoil will be placed over the benched surfaces and the quarry floor, and revegetation efforts will begin in these areas. No impoundments, drainages and natural drainage patterns, pits, ponds, dumps, shafts, adits, drill holes, or leach pads requiring specific reclamation measures are planned to be involved with this development. Haul roads in the quarry floor area will be graded flat and reclaimed as part of the pit floor area.

Borings B-1, B-2, B-3A, and B-3B were completed as described Section V of this notice. The drill hole locations for Borings B-1, B-2, B-3A, and B-3B are planned

to be mined through and will be reclaimed as part of the final benched slope reclamation.

No drainages presently cross the site that will require reclamation. No impoundments, pits, ponds, shafts and adits, waste dumps, tailings areas, or leach pads that would require reclamation will be developed for this mining operation.

Except for topsoil stockpiles, all materials mined on the site will be used for material products off the site. The topsoil will be redistributed over the site during reclamation. No stockpiles should remain on the site following final reclamation.

110.3 - Surface facilities to be left

Describe any surface facilities which are proposed to remain on-site after reclamation (buildings, utilities, roads, drainage structures, impoundments, etc.). Describe their post-mine application. Justification for not reclaiming these facilities must be included in the variance request section.

All equipment, facilities, temporary buildings, and wastes will be removed from the quarry site prior to reclamation. The only facilities to remain on site following reclamation will be the safety fencing shown on Figure 6.

110.4 - Treatment, location and disposition of deleterious materials

Describe the nature and extent of any deleterious or acid forming materials located on-site. Describe how these materials will be neutralized, removed, or disposed of on site. Describe how buildings, foundations, trash and other waste materials will be disposed of.

The mining and processing activities to take place on the site will not generate deleterious or acid-forming materials. Temporary buildings and foundations will be removed from the site following mining activities. Refuse and other waste materials will be disposed of at off site landfills.

110.5 - Revegetation planting program and topsoil redistribution

Describe the revegetation tasks to be performed in detail. For example, will ripping, mulching, fertilizing, seeding and scarifying of these areas be performed and if so, how will this be accomplished? Correlate this information with the Reclamation Treatments Map.

The properties surrounding the UDOT Beck Street Quarry currently have large mining facilities in operation. The reclamation plans for both the Lakeview and Thomas quarries describe the highwall that will remain on these two properties as a series of terraced slopes. Therefore, to be consistent with surrounding properties, the remaining highwall at the Beck Street Quarry will consist of a series of terraced slopes where each bench is about 30 feet wide; both the slopes and benches will consist primarily of rocky material.

The goals of the revegetation efforts for the site include a vegetative cover totaling 70% of the existing, pre-mining vegetative cover as outlined in the Reclamation Practices under R6474-111-13. Existing vegetative coverage at the site is not consistent across the property. Two distinct communities exist, each with a distinct vegetative cover type. These are designated the upper area and the lower area as described in Section 106.7. In summary, the upper area and lower area of the property consist of 100% and 51% vegetative cover, respectively. For the purposes of reclamation, the post-mining site is broken down into three areas: (1) setback (a 70-foot-wide strip on the east side of the property), (2) terraced slopes, and (3) quarry floor. The setback area will be revegetated with species consistent with the current conditions of the upper area of the property to a minimum of 70% vegetative cover (70% goal \times 100% current cover). The terraced slope and quarry floor will be revegetated with species consistent with the current conditions of the lower area of the property at a minimum of 36% vegetative cover (70% goal \times 51% current cover). The revegetation efforts are summarized in Table 16 below:

Table 16 – Pre- and Post-Mining Vegetative Cover

Pre-mining Plant Communities	Pre-mining Vegetation Coverage	Post-mining Areas	Post-mining Revegetation Coverage Goals
Upper Area	100%	Setback area	70% (70% goal \times 100% current cover)
Lower Area	51%	Terraced slope	36% (70% goal \times 51% current cover)
Lower Area	51%	Quarry floor	36% (70% goal \times 51% current cover)

a) Soil Material Replacement

In order to reestablish the required ground cover, one to two feet (depending on underlying material) of suitable soil material usually has to be redistributed on the areas to be reseeded. If the stockpiled soil isn't sufficient for this, soil borrow areas will need to be located.

Describe the volume of soils and approximate depth of soil cover to be used in reclamation. Describe the source of these soils and provide an agronomic analysis of the soils. If soils will not be used describe the alternative material or amendments to be applied in lieu of soils. Describe the methods used to transport and place soils.

An estimated volume of 132,400 cubic feet of recovered topsoil from the upper area will be stockpiled before mining operations begin in the setback area. In addition, an estimated volume of 83,300 cubic feet of recovered topsoil from the lower area will be stockpiled away from mining operations.

b) Seed Bed Preparation

Describe how the seedbed will be prepared and equipment to be used. The Division recommends ripping or discing to a minimum of 12 inches and leaving the seed bed surface in as roughened

condition as possible to enhance water harvesting, erosion control and revegetation success. Compacted surfaces such as roads and pads should be deep ripped a minimum of 18 inches.

The setback area will be approximately 2.1 acres. The terraced slope area is an estimated 4.5 acres of benches and approximately 20 acres of slope. The final quarry floor will be approximately 21.2 acres. The quarry floor area will be slightly sloped to the east to contain runoff on site. The soil will be prepared utilizing a deep ripping technique to a depth of 18 inches to facilitate water harvest on all surfaces except the slopes (reference reclamation plan).

Following an even redistribution of stockpiled topsoil, biosolids will be applied to all surfaces at a biosolid application rate of 10-15 dry tons per acre mixed with 50% wood-chips and evenly distributed across the property.

c) Seed Mixture - List the species to be seeded:

Provide a seed mix listing adaptable plant species and the rate of seeding that will be used at the site for reclamation. More than one seed mix may be needed, depending upon the areas to be reclaimed. Keep the proposed post-mining land use in mind when developing seed mixes.

(The Division recommends seeding 12-15 lbs./acre of native and introduced adaptable species of grass, forb, and browse seed for drill seeding and 15-20 lbs./acre for broadcast or hydro seeding. The Division can provide assistance in developing reclamation seed mixes if requested).

d) Seeding Method

Describe method of planting the seed.

The Division recommends planting the seed with a rangeland or farm drill. If broadcast seeding, harrow or rake the seed 1/4 to 2 inch into the soil. Fall is the preferred time to seed.

The average annual precipitation in the vicinity is about 16 inches (based on data from the Salt Lake City NWSFO station, NOAA 2006). Species for reseeding have been chosen based on these climate conditions. Seeding will occur in the late fall before the first snowfall when moisture conditions are most favorable.

The seed mixture for the setback area will consist of species native to the Intermountain region and native species that existed prior to mining operations. According to the *Intermountain Plant Guide*, greater yields of forage and increased biodiversity are produced when grasses and legumes are grown in mixtures.

The goals of revegetation for both the terraced slope and quarry floor area are to control dust and minimize the effects of erosion. The seed mixture will consist of species that will establish rapidly and serve as a nurse crop for native species that will be planted to replace those that existed before the mining operations.

Revegetation of the terraced slope area will target primarily the benches, but the rocky-sloped area will also be seeded to potentially revegetate this area to exceed the minimum revegetation requirements of 36%.

Seed will be broadcasted onto a prepared seedbed in the setback and pit floor areas. Reseeding of the terraced slope area will be conducted using hydroseeding/hydromulching (with tackifier) on both the slope area and benches (UDOGM [No date]). After seeding placement, a roller harrow will be used across all areas to ensure that the depth of the seeds is about 2 inches.

Seeding rates and seed mixture is summarized below in Table 17. Seed mixtures and application rates will be adapted for each revegetation area (setback area, terraced slope area, and pit floor area) in accordance with revegetation goals for each area as described above.

Table 17 – Revegetation Seed Mixture

Species Name	Common Name	Seeding Rate (lbs pure live seed / acre)
<i>Agropyron cristatum</i>	Crested wheat	4
<i>Sitanion hystrix</i>	Bottlebrush squirreltail	4
<i>Oryzopsis hymenoides</i>	Indian ricegrass	3
<i>Penstemon palmeri</i>	Palmer penstemon	2
<i>Chrysothamnus spp.</i>	Rabbitbrush	2
<i>Artemisia nova</i>	Black Sagebrush	2
<i>Stipa comata</i>	Needle & thread bottlebrush	2
<i>Artemisa tridentata wyomingensis</i>	Wyoming Big Sagebrush	1
Total lbs/acre		20

e) Fertilization

Describe fertilization method, type(s) and application rate (if needed).

Biosolids will be integrated with topsoil as described under seed bed preparation.

f) Other Revegetation Procedures

Please describe other reclamation procedures, such as mulching, biosolids application, irrigation, hydroseeding, etc., that may be planned.

Reclamation procedures for mulching, biosolids application, and hydroseeding are described above.

VIII. Rule R647-4-112 VARIANCE

The Permittee / Operator may request a variance from Rules R647-4-107 (Operation Practices), R647-4-108 (Hole Plugging), and R647-4-111 (Reclamation Practices) by submitting the following information:

1.11	<i>the rule(s) which a variance is requested from; (rule number and content)</i>
1.12	<i>a description of the specific variance requested and a description of the area affected by the variance request; show this area on the Reclamation Treatment Map(s)</i>
1.13	<i>justification for the variance;</i>
1.14	<i>alternate methods or measures to be utilized in the variance area.</i>

Variance requests are considered on a site-specific basis. For each variance requested, attach a narrative which addresses the four items listed above.

No variances are requested with this notice.

IX. Rule R647-4-113 - SURETY

A Reclamation surety must be provided to the Division prior to final approval of this application. In calculating this amount, include the following major tasks:

- 1) *Clean-up and removal of structures.*
- 2) *Backfilling, grading and contouring.*
- 3) *Soil material redistribution and stabilization.*
- 4) *Revegetation (preparation, seeding, mulching).*
- 5) *Safety gates, berms, barriers, signs, etc.*
- 6) *Demolition, removal or burial of facilities/structures, regrading/ripping of facilities areas.*
- 7) *Regrading, ripping of waste dump tops and slopes.*
- 8) *Regrading/ripping stockpiles, pads and other compacted areas.*
- 9) *Ripping pit floors and access roads*
- 10) *Drainage reconstruction.*
- 11) *Mulching, fertilizing and seeding the affected areas.*
- 12) *General site clean up and removal of trash and debris.*
- 13) *Removal/disposal of hazardous materials.*
- 14) *Equipment mobilization.*
- 15) *Supervision during reclamation.*

To assist the Division in determining a reasonable surety amount, please attach a reclamation cost estimate which addresses each of the above steps. The areas and treatments included in the reclamation treatments map should correspond with items included in the reclamation cost estimate. The reclamation costs used by the Division must be third party costs.

1. Clean-up and removal of structures

There will be no permanent structures established at the site. If any structure does exist, it will be portable in nature (for example, a modular trailer) and will be capable of being removed using appropriate equipment. Typically, sites with similar activities have estimated the third party costs to move or relocate this type of equipment at approximately \$600 - \$750.

Total = \$750

2. Backfilling, grading and contouring

A. Quarry floor / processing areas

The quarry floor/processing area of the site will not require backfilling, as it is primarily a hardrock floor with varying amounts of soil or quarry deposition material compacted onto it. Areas of densely compacted material (i.e. former stockpile sites or access roads) will be ripped and graded as necessary prior to application of topsoil.

Topsoil (as available – see below) will be spread over the floor area, and the slope of the floor will be graded to provide drainage eastward toward the quarry face to eliminate stormwater runoff from the site. There is no planned contouring of the quarry floor/processing area, and it will remain relatively flat as is typical for the surrounding areas adjacent to the site. *The majority of this work will be accomplished during mining operations.*

Estimated costs to perform any final grading are estimated at approximately 20 hours of machine work at a cost of \$250/hour to complete site grading.

20 X \$250 = \$5,000

Total = \$5,000

B. Highwall/mined areas

Highwall areas that have been mined will be contoured in accordance with mining plans as specified within Section 110.02 of this NOI document. In general, these areas will be mined so that they match contours of the neighboring quarries to the north and south of the site. No backfilling or grading of mined areas along the highwall is planned for this site.

Because contouring will be performed as part of mining operations, there will be no surety costs associated with this effort.

Total = \$0

3. Soil material redistribution and stabilization

A. Soil Redistribution

In preparing the site for the mining operation, topsoil that currently exists on the site will be stripped and stockpiled on the east (top) side of the site, and along the western side (bottom) of the site. Topsoil will be redistributed along the contoured bench areas of the highwall portion of the site, as well as over the quarry floor/processing area.

Estimated cost for redistribution of topsoil is based on 40 hours at \$250/hr.

$$40 \times \$250 = \$10,000$$

Total = \$10,000

B. Soil Stabilization

Redistribution and stabilization of topsoil will be accomplished primarily with bulldozers, and will be stabilized by track walking with bulldozers. The bulldozer operation will be accompanied by a water truck for dust control and improved compaction.

Estimated costs for trackwalking and stabilization are based on 40 hours of bulldozer time at \$250 per hour and 40 hours of water truck time at \$95 per hour.

$$(40 \times \$250) + (40 \times \$95) = \$13,800$$

Total = \$13,800

4. Revegetation (preparation, seeding, mulching)

(5 days)	\$2,500
Seed Mixture (48 acres)	\$26,400
Hydroseeding (.03 cents/sq ft for 28 acres) (3 days)	\$1,860
Broadcast seeding (23 acres) (1 day)	\$500
Biosolids (7 tons/acre x 48 acres)	No Cost
Wood chips (7 tons/acre x 48 acres)	\$3,140

Total Cost = \$37,800

5. Safety gates, berms, barriers, signs, etc.

Safety fencing will be installed to protect all potentially accessible highwall exposures, including those at the toe of the highwall. This will entail fencing the entire east perimeter of the site, as well as short lengths of the north and south perimeters near the top of the site. In addition, the quarry floor/processing area will be enclosed with fencing once quarrying operations are complete. Overall, it is estimated at 3,500 linear feet of fencing will be required in order to appropriately protect the site and ensure that safety concerns are addressed.

Signs and warning placards will be placed on the fence or in other strategic areas as necessary and appropriate to caution persons who may try to access the site from these areas. One gate will be installed on both the west and east sides of the property to give access; gates will be wide enough so that heavy machinery may pass through.

To estimate costs for fencing, three types of chain-link fence were evaluated. All

costs presented here include installation.

- 1) Six-foot high fence: \$11 – \$13 per linear foot. (Average - \$12/ft.)
- 2) Six-foot high fence with barbed wire barrier: \$12.50 - \$14 per linear foot. (Average = \$13.25/ft.)
- 3) Eight-foot high fence: \$12.50 - \$14 per linear foot. (Average = \$13.25/ft.)

Based on these costs, a conservative estimate of fencing at \$13.50 per linear foot will be used for surety costs.

Fencing Cost = \$13.50 x 3,500 ft =	Fence Total Cost = \$47,250
Gates: 2 gates x \$1,000 ea. =	Gate cost = \$2,000
Signage: \$1,000 =	Signage = <u>\$1,000</u>

Total Cost = \$50,250

6. Demolition, removal or burial of facilities/structures, regrading, and ripping of facilities areas.

There will be no demolition of buildings. Ripping and regrading costs of the quarry area are included in Item 2-A of this Section.

Total Cost = \$0

7. Regrading, ripping of waste dump tops and slopes

There will be no waste dumps on-site, therefore surety will not be required for these activities.

Total Cost = \$0

8. Regrading/ripping stockpiles, pads and other compacted areas

All product stockpiles will be removed prior to reclamation. No other stockpiles will exist on-site. There are no other compacted areas that will require ripping or regrading. Costs associated with any necessary ripping or grading of stockpile areas are included in Item 2-A of this Section.

Total Cost = \$0

9. Ripping pit floors and access roads

The final pit floor will require minimal ripping, and will be graded to slope gently to the east. This is discussed and included in Item 2-A of this Section.

Total Cost = \$0

10. Drainage reconstruction

There are no existing streams to be reclaimed. Rocky benches will provide energy dissipation for runoff flowing to the quarry floor. No constructed drainage facilities are anticipated.

Total Cost = \$0

11. Mulching, fertilizing and seeding the affected areas

See Item 4.

Total Cost = \$0

12. General site clean up and removal of trash and debris

Clean-up is estimated at \$75 per acre; 30 acres of the site (the approximate size of the non-highwall area) will be subjected to clean up.

30 acres x \$75/acre = \$2,250

Total Cost = \$2,250

13. Removal/disposal of hazardous materials

No hazardous chemicals will be stored on-site or used during mining operations. There may be a need for small volumes (less than five, 55-gallon drums) of petroleum products required for maintenance of on-site mobile equipment. It is assumed that all petroleum products will be removed from the site at close of operations. If it is necessary to properly dispose of the petroleum products, a waste disposal company will be used to haul waste materials to appropriate disposal facility. Any fuel storage will be in portable tanks with containment vessels.

5 drums x \$150/drum =

\$ 750

Removal of fuel storage tanks and containment =

\$1,000

Total Cost = \$1,750

14. Equipment mobilization

The proposed equipment and facilities for rock processing are designed to be portable and easy to move with the use of a tractor-trailer combination. Typically, a front-end loader or crane will be capable of loading any non-wheeled equipment onto the flat-bed trailers. The cost to remove each piece of equipment is approximately \$600. It is assumed that each piece of equipment would constitute one load, with the exception of the conveyor (non-stacking) belts. The two conveyor belts will require only one trip combined.

Conveyors: 1 trip x \$600/trip =	\$ 600
Four Drill Rigs: 4 trips x \$600/trip =	\$2,400
Two Bull Dozers: 2 trips x \$1,500/trip =	\$3,000
Four Loaders: 4 trips x \$1,500/trip =	\$6,000
Two Grizzly Feeders: 2 trips x \$600/trip =	\$1,200
Two Jaw Crushers: 2 trips x \$600/trip =	\$1,200
Two Baghouses: 2 trips x \$600/trip =	\$1,200
Two telescoping stacking conveyors: 2 trips x \$600/trip =	\$1,200

A front-end loader and crane would be used over a 5-day period to load the equipment for site removal. The cost for use of a crane is estimated to be \$1000/day, and the cost for use of a front-end loader is \$250/day. Supervision and labor for the 5-day period is estimated at \$75/hour for 100 hours.

Crane Costs = 5 days x \$1000/day	\$5,000
Front-End Loader Costs = 5 days @ \$250/day	\$1,250
Supervision Costs = 50 hours @ \$50/hour	\$2,500
Labor Costs = 50 hours @ \$25/hour	\$1,250

Total = \$26,800

15. Supervision during reclamation

Periodic supervision for reclamation and revegetation (excluding equipment mobilization supervision) is estimated at 50 hours at \$50/hour.

Supervision Costs: 50 hours x \$50/hr =	\$2,500
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Total = \$2,500

Surety costs are summarized in Table 18.

Table 18 – Summary of Surety Costs for Site Reclamation

No.	Description	Estimated Cost (Dollars)
1.	Clean-up and removal of structures	750
2.	Backfilling, grading and contouring	5,000
3.	Soil material redistribution and stabilization	10,000
4.	Revegetation (preparation, seeding, mulching)	37,800
5.	Safety gates, berms, barriers, signs, etc	50,250
6.	Demolition, removal or burial of facilities/structures, regrading, and ripping of facilities areas.	0
7.	Regrading, ripping of waste dump tops and slopes	0
8.	Regrading/ripping stockpiles, pads and other compacted areas.	0

9.	Ripping pit floors and access roads	0
10.	Drainage reconstruction	0
11.	Mulching, fertilizing and seeding the affected areas	0
12.	General site clean up and removal of trash and debris	2,250
13.	Removal/disposal of hazardous materials	1,750
14.	Equipment mobilization	26,800
15.	Supervision during reclamation	2,500
TOTAL:		\$137,100

X. PERMIT FEE [Mined Land Reclamation Act 40-8-7(i)]

The Utah Mined Land Reclamation Act of 1975 [40-8-7 (I)] provides the authority for the assessment of permitting fees. Commencing with the 1998 fiscal year (July 1 - June 30), and revised July 1, 2002, annual permit fees are assessed to new and existing notices of intention and annually thereafter until the project disturbances are successfully reclaimed by the Permittee / Operator and released by the Division.

Large mining permits require an initial submission fee and annual fee of \$500.00 for surface disturbance of 50 or less acres, or a \$1,000.00 fee for surface disturbance greater than 50 acres (see page six Section III, Rule R647-4-106.3 for estimated disturbance calculation). The appropriate fee MUST accompany this application or it cannot be processed by the Division.

PLEASE NOTE: *If you are expanding from a small mining operation to a large mining operation, the appropriate large mine permit fee, less the annual \$150.00 small mine fee (if already paid) MUST accompany this application.*

XI. SIGNATURE REQUIREMENT

I hereby certify that the foregoing is true and correct. (Note: This form must be signed by the owner or officer of the company/corporation who is authorized to bind the **company/corporation**).

Signature of Permittee / Operator/Applicant: _____

Name (typed or print): _____

Title/Position (if applicable): _____

Date: _____

John Thomas

Legacy Parkway Project Director

August 18, 2006

PLEASE NOTE: *Section 40-8-13(2) of the Mined Land Reclamation Act provides for maintenance of confidentiality concerning certain portions of this report. Please check to see that any information desired to be held confidential is so labeled and included on separate sheets or maps.*

Only information relating to the location, size or nature of the deposit may be protected as confidential.

Confidential Information Enclosed: ☐ Yes ☒ No

Attachment I

Vegetation Cover Sampling

Vegetation cover sampling determines the amount of ground that is covered by live vegetation. It is divided into four categories which equal 100 percent. They are:

Vegetation - This is the live perennial vegetation. Care should be taken to avoid sampling in disturbed areas that have a large percentage of annual or weedy vegetation, such as cheatgrass and russian thistle.

Litter - This is the dead vegetation on the ground, such as leaf and stem litter.

Rock/rock fragments - This is the rock and rock fragments on the soil surface.

Bare ground - This is the bare soil which is exposed to wind and water erosion.

Cover Sampling - The following methods are acceptable:

Ocular Estimation

This method visually estimates the percentage of ground covered in a plot by the four components. Plot size is usually a meter or yard square or a circular plot 36 inches in diameter. Ten to twenty plots should be randomly sampled in each major vegetation type.

Line Intercept

Percent ground cover is obtained by stretching a tape measure (usually 100') over the ground and then recording which of the four components is under each foot mark. At least ten of these transects should be randomly laid out and measured in each major vegetation type.

Soil Survey and Sampling Methods

If a Natural Resource Conservation Service or land management agency soil survey is not available, the Permittee / Operator shall delineate all soil types that will be disturbed by mining on a map. Each soil type shall be sampled for its characteristics and inherent properties. Representative sampling locations should have similar geologic parent material, slopes, vegetative communities and aspects. The sampling locations should be representative of the soil type and be identified on the map. Sampling shall be at a minimum of one for each soil type disturbed.

The soil map needs to be of sufficient scale so that each soil type can be accurately located on the ground.

Reference Set 1

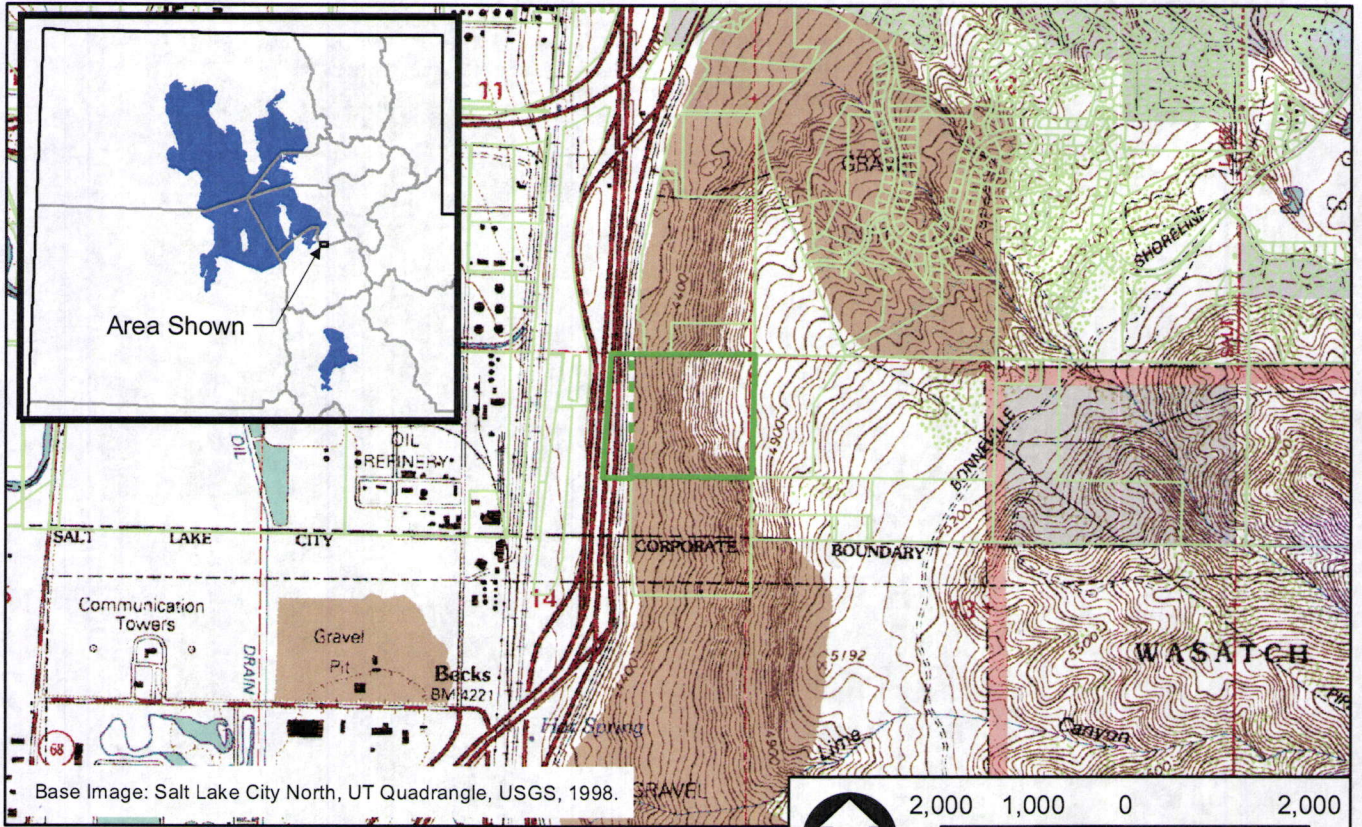
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Reference Set 2

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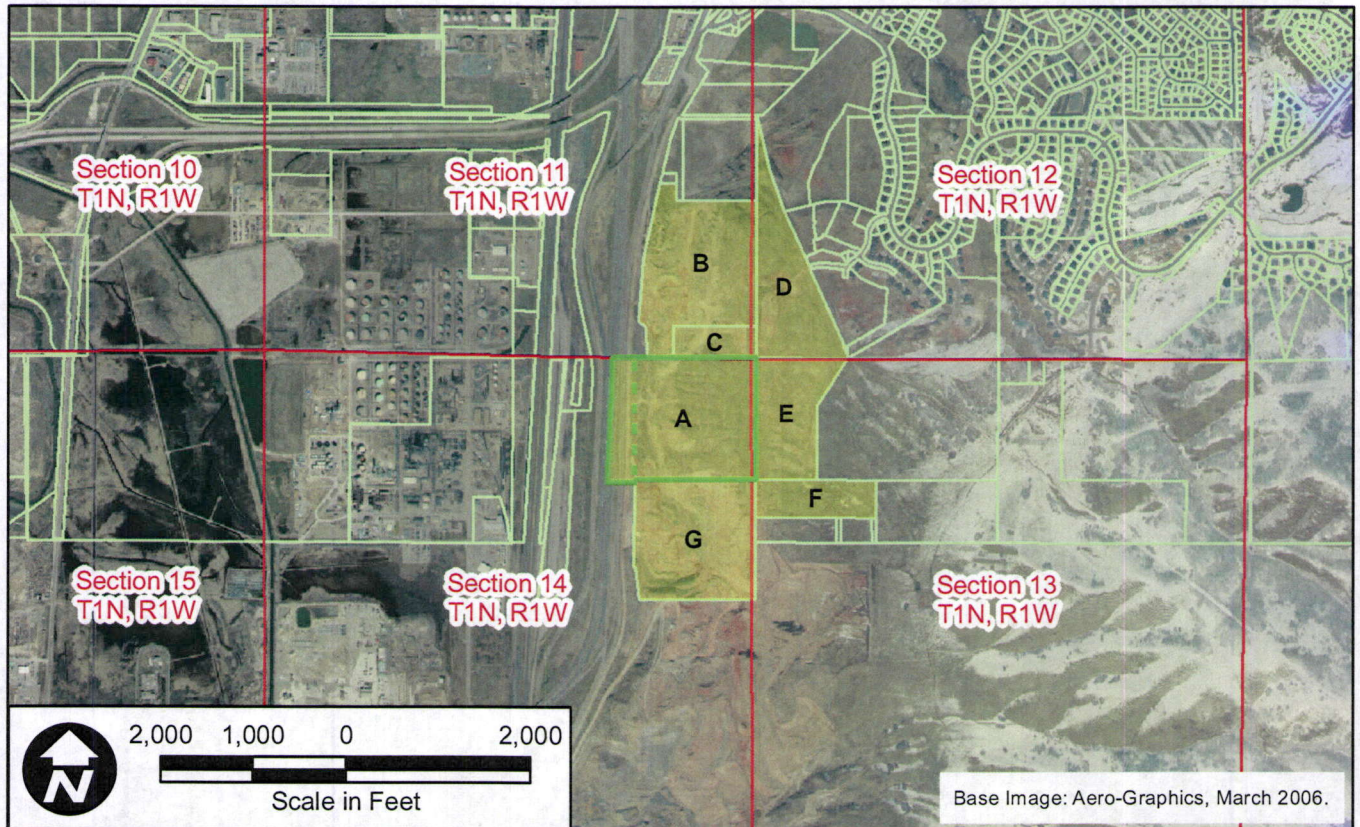


UDOT Beck Street Quarry Site Location

DATE
August 2006

FIGURE

1



Map ID	Parcel No.	Owner / Address (Davis County Recorder's Office)
A	011220004	State Road Commission of Utah 4501 South 2700 West Salt Lake City, UT 84119
B	011060026	Monte C. & Gloria V. Thomas 7715 Dell Road Salt Lake City, UT 84121
C	011060010	Monte C. & Gloria V. Thomas 7715 Dell Road Salt Lake City, UT 84121
D	011070061	Granite Construction Company P.O. Box 50085 Watsonville, CA 95077
E	011200033	Granite Construction Company P.O. Box 50085 Watsonville, CA 95077
F	011200035	LRP Investments, LLC 900 N. Redwood Road North Salt Lake, UT 84054
G	011220006	LRP Investments, LLC P.O. Box 700 North Salt Lake, UT 84054

UDOT Beck Street Quarry Property Ownership

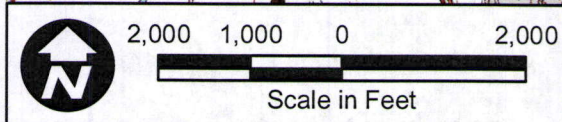
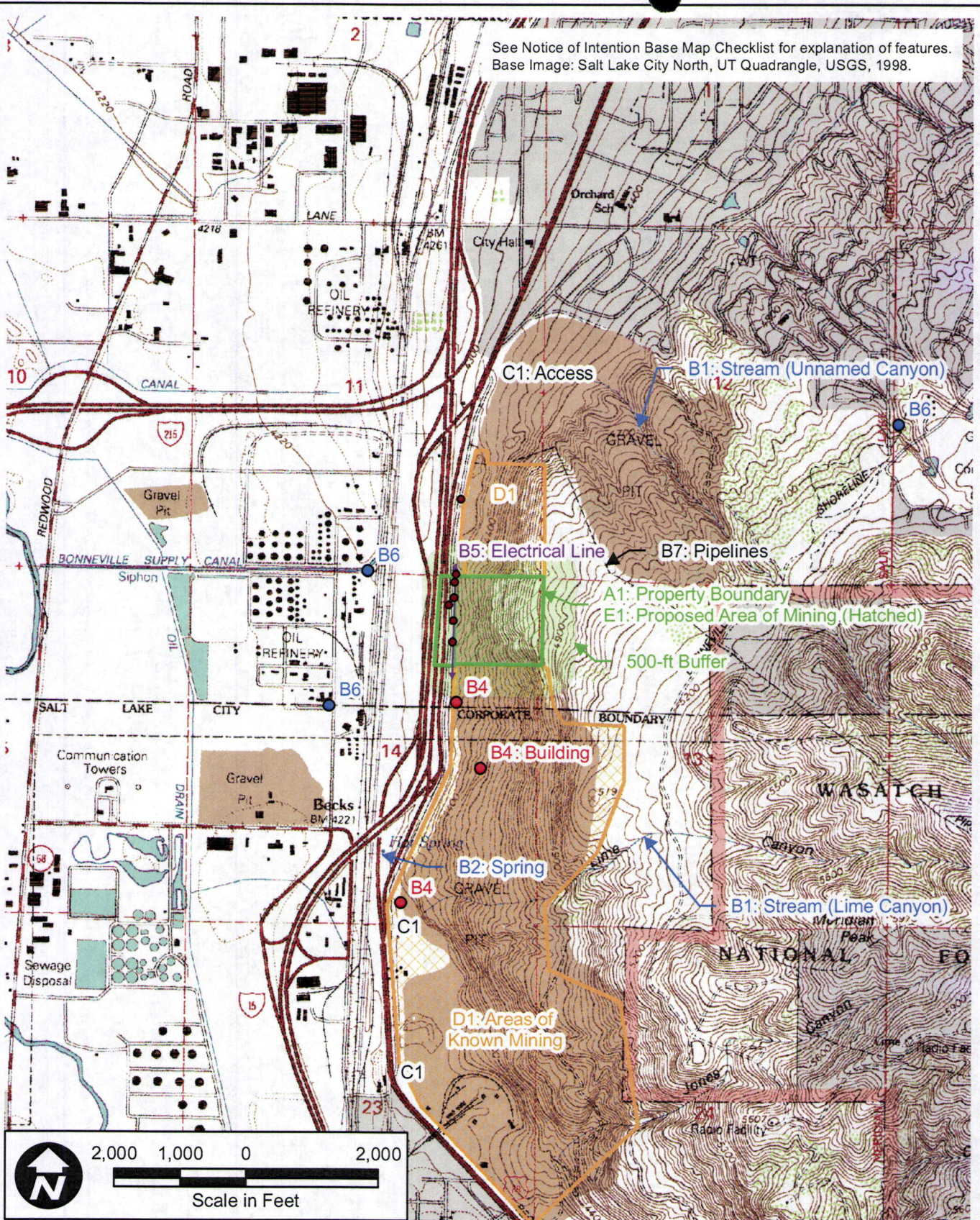
DATE

August 2006

FIGURE

2

See Notice of Intention Base Map Checklist for explanation of features.
Base Image: Salt Lake City North, UT Quadrangle, USGS, 1998.



UDOT Beck Street Quarry Base Map

Notice of Intention to Commence Large Mining Operations

DATE

August 2006

FIGURE

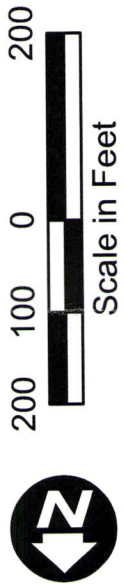
3



EXPLANATION

 Site Boundary

Source: Aero-Graphics Inc. 0.5-meter/pixel imagery dated 03/23/2006

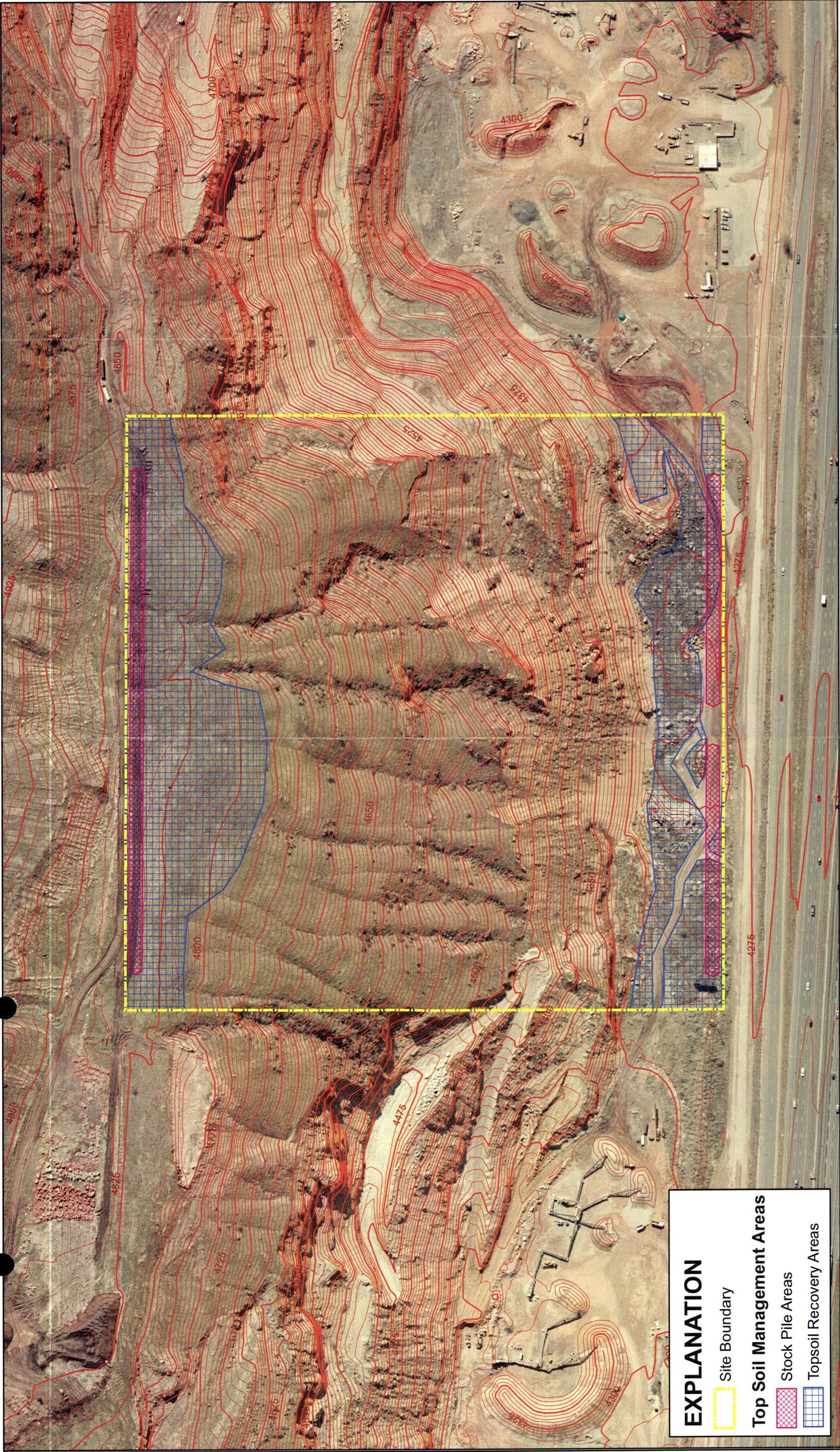


**UDOT Beck Street Quarry
Surface Facilities Map**

DATE August 2006

FIGURE 4

Notice of Intention to Commence Large Mining Operations



EXPLANATION

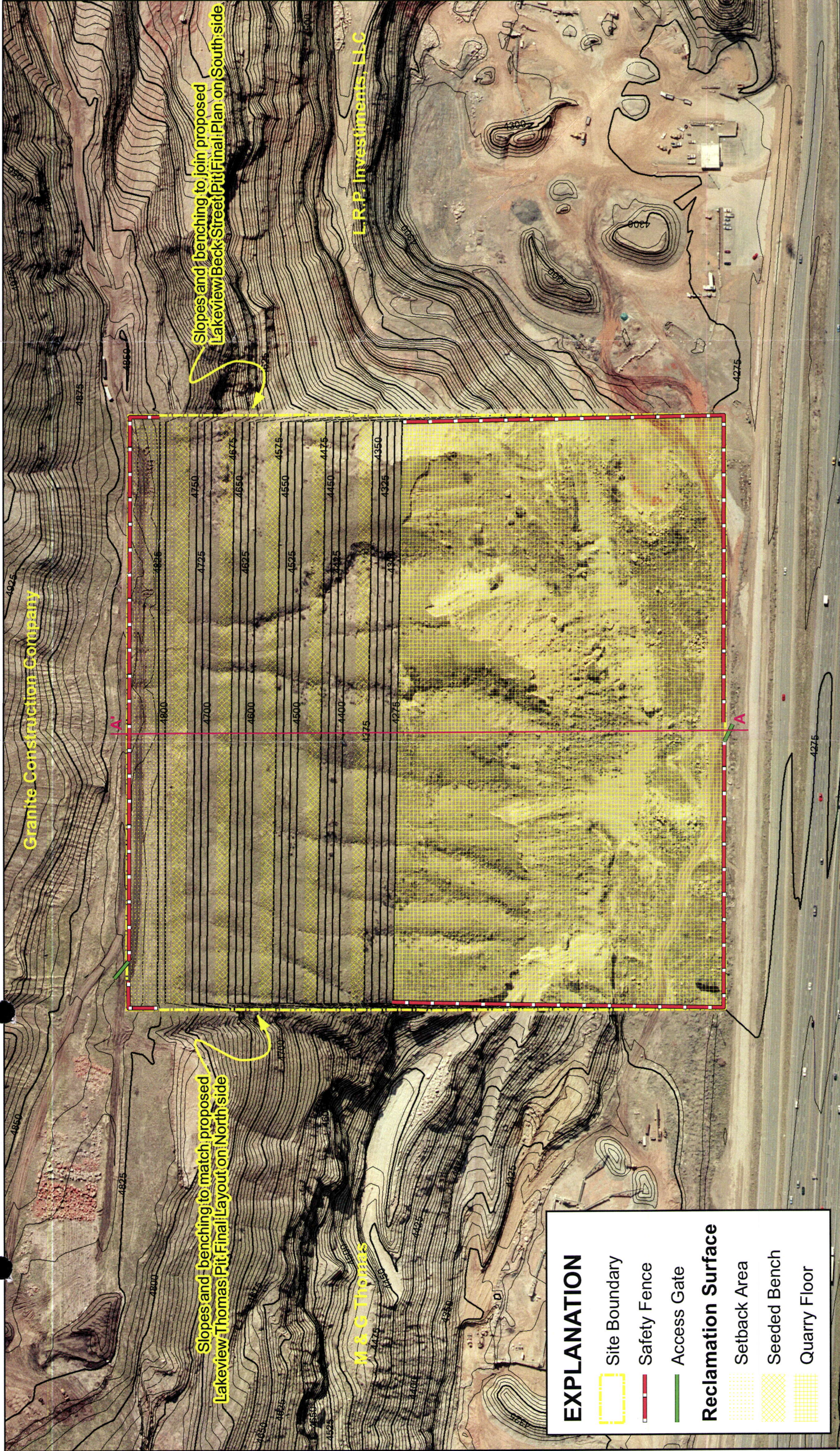
- Site Boundary
- Top Soil Management Areas**
 - Stock Pile Areas
 - Topsoil Recovery Areas

Source: Aero-Graphics Inc. 0.5-meter/pixel imagery dated 03/23/2006

**UDOT Beck Street Quarry
Topsoil Management Areas**

Notice of Intention to Commence Large Mining Operations

DATE	August 2006
FIGURE	5



EXPLANATION

Site Boundary

Safety Fence

Access Gate

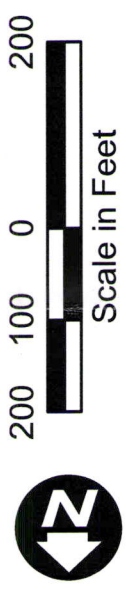
Reclamation Surface

Setback Area

Seeded Bench

Quarry Floor

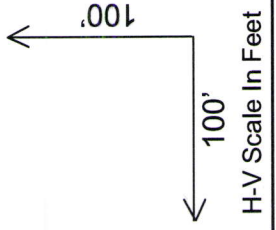
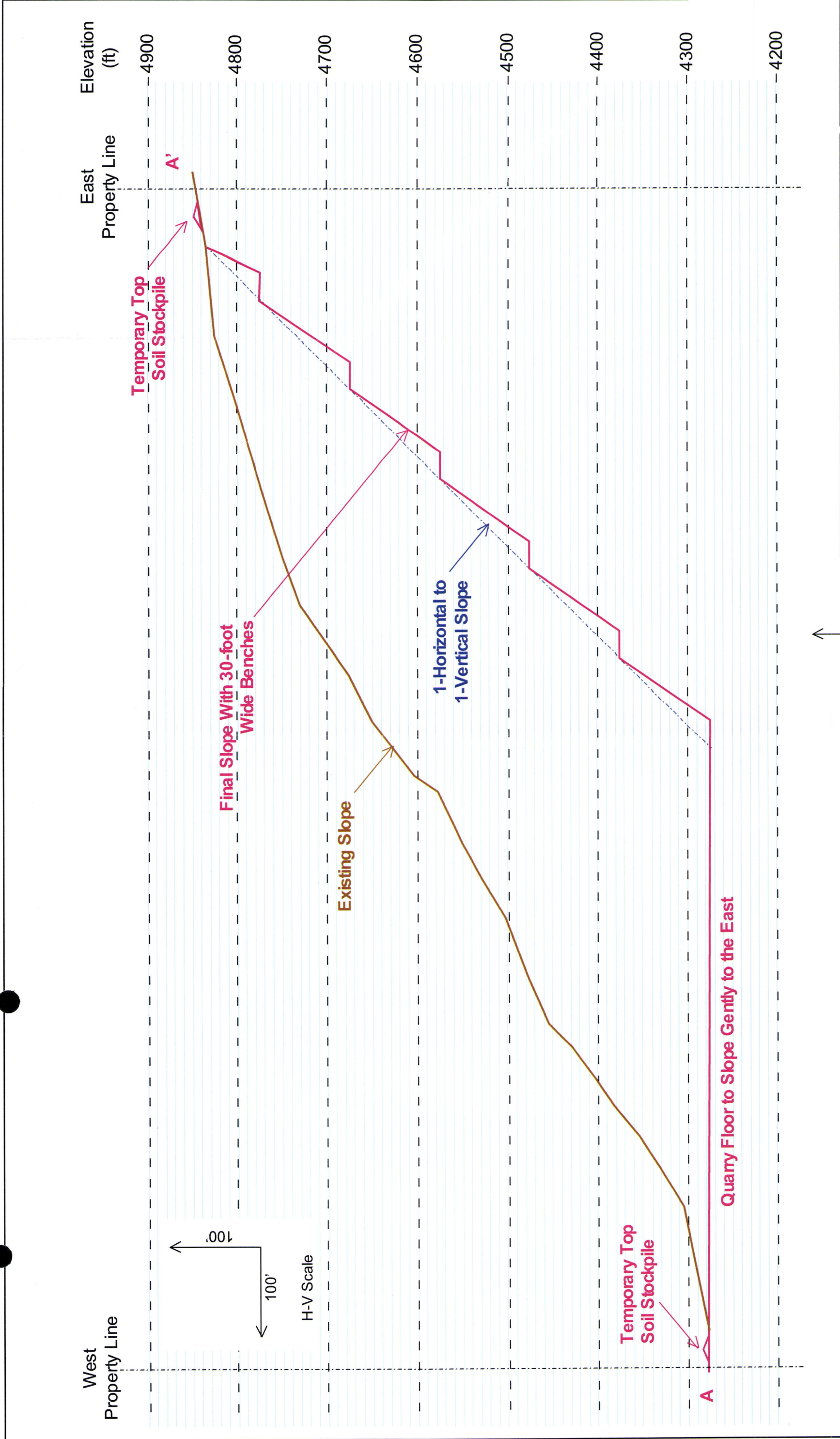
Source: Aero-Graphics Inc. 0.5-meter/pixel imagery dated 03/23/2006



UDOT Beck Street Quarry Final Quarry Plan

Notice of Intention to Commence Large Mining Operations

DATE	August 2006
FIGURE	6





Source: Aero-Graphics Inc. 0.5-meter/pixel imagery dated 03/23/2006



UDOT Beck Street Quarry Soil and Rock Exploration

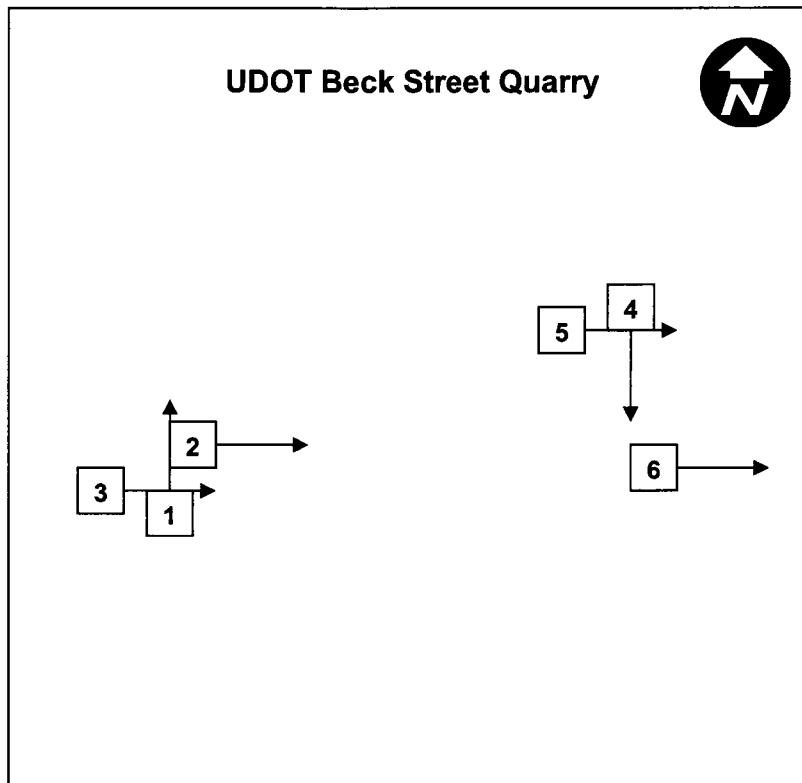
Notice of Intention to Commence Large Mining Operations

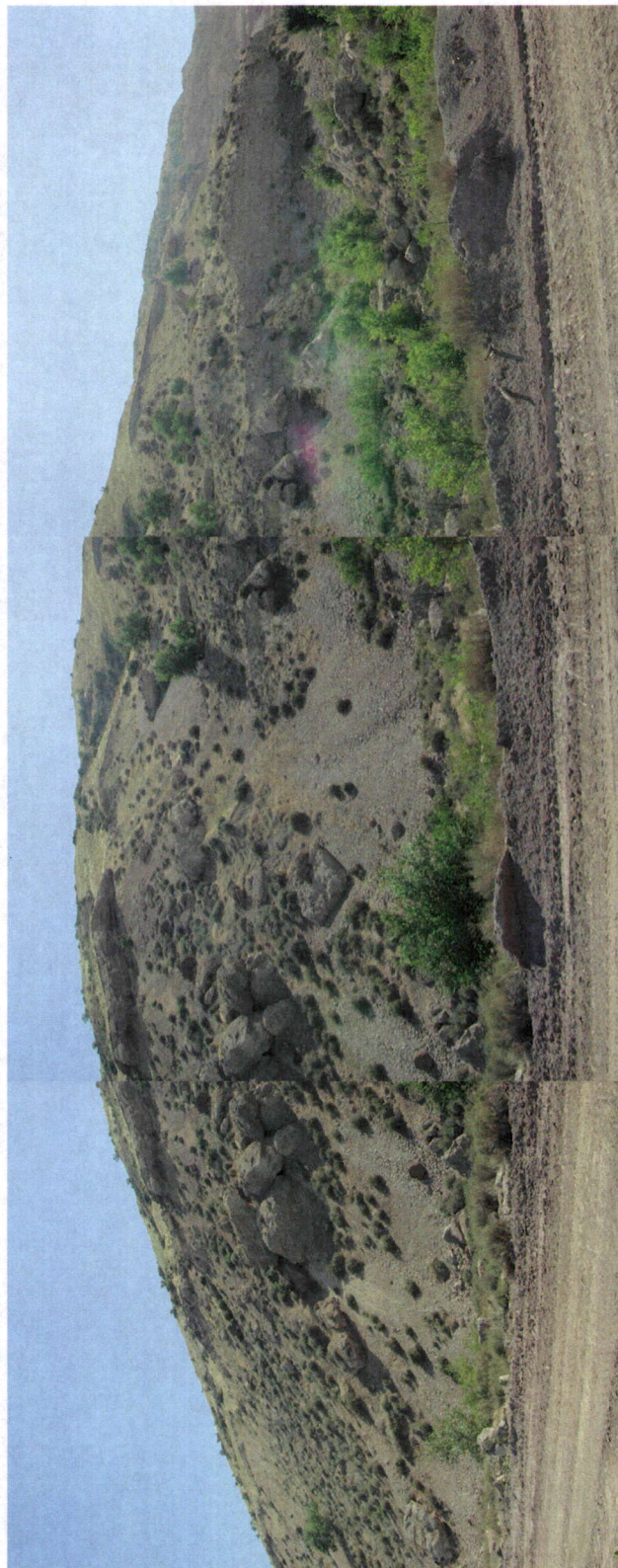
DATE
August 2006

FIGURE
8

Please note the following with regard to the vegetation survey photos:

- All photos were taken July 25, 2006.
- Photo orientation is noted in parentheses ().
- General transect location and orientation are shown in the schematic below (not to scale). Numbers are transect numbers, not photo numbers. P indicates approximate location of panorama (photos 1-3).





Photos 1-3 – Quarry site panorama (Looking East)



Photo 4 – Transect 1 (Looking North)



Photo 5 – Transect 2 (Looking ESE)



Photo 6 – Transect 3 (Looking East)



Photo 7 – Transect 4 (Looking SSW)



Photo 8 – Transect 5 (Looking East)



Photo 9 – Transect 6 (Looking East)

Appendix B – Agency Coordination Letters

Sarah Lindsey, Utah Division of Wildlife Resources, Utah Natural Heritage Program
Paul West, Utah Department of Transportation, Environmental Services



State of Utah

Department of Natural Resources

MICHAEL R. STYLER
Executive Director

Division of Wildlife Resources

JAMES F. KARPOWITZ
Division Director

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

July 15, 2006

Lenora Sullivan
UDOT Legacy Parkway
HDR, Inc.
4001 South 700 East
Salt Lake City, UT 84107

Dear Ms. Sullivan:

I am writing in response to your email dated July 13, 2006 requesting information regarding species of special concern proximal to the UDOT Beck Street Quarry project located near Beck Street in North Salt Lake, Davis County, Utah [Section 14 of Township 1 North, Range 1 West, SLB&M].

The Utah Division of Wildlife Resources (UDWR) does not have records of occurrence for any threatened, endangered, or sensitive species within the project area noted above or within a one-mile radius; however, in the vicinity, there are recent records of occurrence for long-billed curlew, a bird included on the *Utah Sensitive Species List*.

The information provided in this letter is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, and because data requests are evaluated for the specific type of proposed action, any given response is only appropriate for its respective request.

In addition to the information you requested, other significant wildlife values might also be present on the designated site. Please contact UDWR's habitat manager for the northern region, Scott Walker, at (801) 476-2776 if you have any questions.

Please contact our office at (801) 538-4792 if you require further assistance.

Sincerely,

Sarah Lindsey
Database Technician
Utah Natural Heritage Program

cc: Scott Walker, NR

Memorandum

Utah Department of Transportation

To: Lenora Sullivan
HDR Engineering

From: Paul W. West, Wetlands/Wildlife Biologist
UDOT, Environmental Services

P.W.W.

Date: August 7, 2006

RE: Proposed UDOT Quarry Site, North Salt Lake, Davis County (PIN 5417)

CC: Betsy Skinner – UDOT, Environmental Services
Greg Punske – FHWA
Chris Lizotte – UDOT, Region 1
Scott Walker – UDWR, Northern Region
File

I understand the Utah Department of Transportation (UDOT) is proposing to develop a quarry for aggregate mining at a location along the Beck Street Corridor in Davis County, Utah (see attached location map). Aggregate will be used to support construction of the Legacy Parkway, and the quarry is planned to maintain operation following project completion in order to support other UDOT projects in the region.

A review of the Utah Division of Wildlife Resources (UDWR) database, and a letter from Sarah Lindsey of the Utah Natural Heritage Program indicates that sightings of the state sensitive long-billed curlew (*Numenius americanus*) have been recorded in the vicinity of the project area. However, according to the UDWR database that I have, this sighting appears to be more than a mile away from the project area, and thus, it should not be affected by this project. Therefore, it is my opinion that this project should have no effect to curlews, or to any federally listed, threatened, endangered, or candidate species, or critical habitat.

In accordance with the U.S. Fish and Wildlife Service memo dated January 27, 2006, we no longer require concurrence letters from them for "no-effect" determinations, therefore, this memo is issued in-lieu of their concurrence letter for your environmental documentation.

In addition, as required in the UDOT Environmental Study Form, I have evaluated the above-referenced project with respect to wildlife issues using the Utah Division of Wildlife (UDWR) database, UDOT's Traffic and Safety database, and the wildlife connectivity database.

Based on the above-mentioned databases, this project is adjacent to a moderately high

wildlife/vehicle accident zone on I-15. The details of this project need to be examined to make sure they do not exacerbate this problem.

Aside from wildlife accidents, I feel this project should have no negative effect to any state sensitive species, important wildlife habitat, big game migration routes, habitat connectivity, or fish passage.

If you have any questions, please call me at (801) 965-4672.